

# AMATEUR RADIO

MAY 1962

JC/EH



VICTORIA

TELEPHONE:  
83 0081, 09 1108  
RUSH. NO.

PREMIER'S DEPARTMENT  
MELBOURNE, C.2

22nd January, 1962

Dear Sir,

Now that the danger seems to have passed, may I convey to you the sincere appreciation of the Government for the part played by your organization in the recent bush fires.

I understand from the Chief Fire Officer of the Country Fire Authority that the radio equipment you so readily offered was of great assistance to him, and that the efforts of your operators contributed in no small measure to the vital task of covering the area with communications.

I would be glad if you would accept my personal grateful thanks for your public spirited action in this emergency, and if you would convey to all concerned the sincere appreciation of the Government for the part they played in this disaster.

Yours faithfully,

  
A. G. Blyth  
Deputy Premier.

The Secretary,  
Wireless Institute of Australia  
(Victorian Division)  
478 Victoria Parade,  
EAST MELBOURNE



Vol. 30, No. 5

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1C7	3/-	7	ea	1
1D5GT	5/-	5	ea	1
1D5	7/6	3	ea	1
1F3	7/6	3	ea	1
1H4	5/-	5	ea	1
1H5	5/-	5	ea	1
1H6	5/-	5	ea	1
1K4	5/-	5	ea	1
1K5	5/-	5	ea	1
1K7	5/-	5	ea	1
1L4	5/-	5	ea	1
1M5G	5/-	5	ea	1
1N5	5/-	5	ea	1
1P5	2/-	10	ea	1
1Q5	5/-	5	ea	1
1S4	7/6	3	ea	1
1S5	10/-			
1T4	5/-			
2A5	7/6			
2A6	7/6			
2D21	15/-			
2X2	5/-	5	ea	1
3A4	10/-			
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3Q5	5/-	5	ea	1
3Q4	10/-			
5V4G	15/-			
5Y3GT	13/9			
5Z3	17/6			
6A3	7/6	3	ea	1
6A6	7/6			
6AG5	5/-			
6AG7	12/6			
6AJ5	7/6	3	ea	1
6AK5	15/-			
6AM5 (EL91)	10/-			
6AM6 (EP91)	10/-			
6B4	10/-			
6B7	10/-			
6B8	12/6			
6BE6	17/6			
6C4	5/-	5	ea	1
6C5	5/-	5	ea	1
6C6	5/-	5	ea	1
6C8	10/-			
6D6	5/-	5	ea	1
6E5	5/-	5	ea	1
6F5	7/6			
6F6	12/6			
6F7	10/-			
6F8	5/-			
6G6	7/6	3	ea	1
6G8G	17/6			
6H6 Glass	2/6			
6H6 Metal	3/6			
6J6	10/-			
6K7	5/-	5	ea	1
6K8G	20/-			
6K8GT	12/6			
6L7	5/-	5	ea	1
6R7	7/6	3	ea	1
6SA7	7/6			
6SC7	7/6			
6SF5	7/6	3	ea	1
6SF7	7/6	3	ea	1
6SH7	4/-	5	ea	1
6SJ7	12/6			
6SK7GT	12/6			
6SL7GT	12/6			
6SQ7	12/6			
6SR7	7/6	3	ea	1
6T7	7/6	3	ea	1
6V4	11/4			
6X5	10/-			
6Y6	5/-	5	ea	1
6Z7	7/6	3	ea	1
7A4	5/-	5	ea	1
7A8	2/-	11	ea	1
7C5	5/-	5	ea	1
7C7	2/-	12	ea	1
7E6	3/6	7	ea	1
7W7	2/6	10	ea	1
12A6	4/-	6	ea	1
12A7T	7/6			
12SA7GT	10/-			
12AH7	5/-	5	ea	1
12C8	5/-			
12H6	3/6			
12J5	5/-	5	ea	1
12K8	5/-	5	ea	1
12SF7	5/-	5	ea	1
12SG7	5/-	5	ea	1
12SK7	5/-	5	ea	1
12SQ7	5/-			
12SR7	5/-	5	ea	1
14A7	3/6	7	ea	1
17Z6	5/-	5	ea	1
16Z5	5/-	5	ea	1
16Z6	5/-	5	ea	1
16Z9	5/-	5	ea	1
30	1/3			
35T	30/-			
45	5/-			
71A7	7/6	3	ea	1
726A	10/-			
80	10/-			
805	45/-			
807	7/6	3	ea	1
808	10/-			
809	20/-			
815	15/-			
830B	15/-			
832A	19/6			
866	32/6			
954	5/-	5	ea	1
955	5/-	5	ea	1
956	5/-	5	ea	1
938A	2/6	10	ea	1
2051	5/-			
9003	7/6	3	ea	1
AV11	2/11			
DL75	2/6	10	ea	1
EA50	2/-	10	ea	1
EC91/6AQ4	10/-			
EF36	5/-	5	ea	1
EF39	5/-	5	ea	1
EF70	5/-	5	ea	1
EF72	5/-	5	ea	1
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EL41	10/-			

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Flexible cable & control box 30/- extra.

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0-1 mA., 3 1/2" round, MR-65 ... £1/15/0

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Stand to suit 15/- extra.

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3-4 Mc. range ... £7  
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Contains slug-tuned coil former. 6d. each.

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Well known make. Brand New.  
To Clear—2/6 each

## SCOPE SOLDERING IRON TIPS

Instrument and wedge type tips, 1/- ea. or 5/6 packet of 6. Carbon elements, 1/- ea. or 5/6 packet of 6.

## R1155B COMMUN. RECEIVER

Frequency range 75 Kc. to 18 Mc. New condition. Few only, £25.

## FILAMENT TRANSFORMER

240v. primary, secondary: 5v. at 2 amp. and 10v. at 3 amp. 35/-.

## No. 122 COMPONENTS

Headphone and Microphone Sets. Good condition ... 25/- set  
Aerial Pack, complete with aerial, base, ropes, pegs and wire ... 50/- to clear

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QE04/10 15/-		VR136	2/-	12	ea	1
QQV06/40 97/6		VR150	10/-			
RL18	7/6	3	ea	1		
RT15 (CV415)	5/-	VT52	5/-			
UL41	7/6	3	ea	1		
VR53	5/-	5	ea	1		
VR101	5/-	5	ea	1		
		VT127	4/11	5	ea	1
		VT501	7/6	3	ea	1
		Y65	5/-			

# "AMATEUR RADIO"

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before the 8th of the month preceding publication. Technical articles should preferably be typed, double spaced, on one side of the paper, signed and numbered. All drawings should be large and done in Indian ink.



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Any complaint regarding non delivery of "A.R." and change of address should be made to the Secretary of the member's Division and not to "A.R." direct.



## OUR COVER

At 6 p.m. on 14th January, 1962, the Victorian Country Fire Authority requested the W.I.A. to provide a communication link from Mt. Dandenong to Melbourne (about 25 miles); by 8 p.m. this link was operating and providing valuable service during the disastrous bush fires which were sweeping the area. Two metre f.m. mobile car phone sets on 145.8 Mc. were used, due to a variety of circumstances.

Regrettably, due to space limitations, the full story is not told.

The known Amateurs who took part in this vital community service were: VK3s ZCB, ZCZ, ZEO, ZBW, CS, BX, QU, ADW, ZCO, ZJY, ZIC, ZBF, ZFZ, ZHT, OF, ZW, ZGP, ZKC, YS, QO, DF, ZGO, ZGM, ZBJ, ZJK, ZDK, ZGH, ZEC, ZDE, ZIR, ARZ, ZFG, ZGW, YA, and ZU.

Our cover is a replica of the official tribute to the Amateur Service, which gave unsparingly in long hours of duty, a true example of community service.

We are no longer "Hams".

## COMMENT



## THE GROWTH OF AN ORGANISATION

By the time this issue of the magazine is printed, the 26th Annual Convention will have come and gone, and the Federal Councillors returned to their respective Divisions to report the results of discussions. Although the work of the Convention will have been strenuous and time-consuming with more than 60 items to discuss, the real work is that arising from the Convention—work for the Executive to carry out the wishes of the Council and work for the Councillors in implementing the various decisions. Two items of great importance on the agenda deal with differing proposals for a new Federal Constitution.

One of these is based on a Federal Company of which the Divisional Companies or unincorporated associations may become members, and the other is in essence a Federal body to which individuals may subscribe as members but for administrative purposes be organised into Divisions, as at present. We cannot predict as this early stage which of these two alternatives will be accepted by the Federal Council; but whatever the outcome, the decision will only be made after due and careful consideration and in accordance with the wishes of the majority of the Divisions.

The Institute has maintained an unspectacular, though steady, growth over the years, but recent events in various spheres of our activities point to the fact that the present Institute organisation is about to emerge from its adolescence into adulthood. Constitutionally, the Institute on a Federal plane has been weak, but the findings of this Convention on the two items aforesaid, could well set the pattern for a stronger Federal body which is capable of expansion and at the same time lay the foundation on which our administrative successors may build a solid structure.

Our keyword should be progress, and you, the member, must make every effort possible and within your particular abilities to assist in the growth of our organisation. You can do this in many ways—come regularly to your Divisional meetings, volunteer to help when required and, most important of all, air your opinions to your Council. If you determine to do even these few things, then our Institute will not look back but should continue to grow into a mature organisation of which we may be justly proud.

FEDERAL EXECUTIVE, W.I.A.

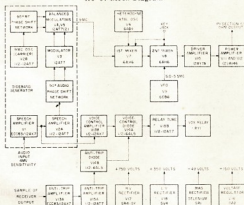
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# HALLICRAFTERS



HT-37 Block Diagram



## MODEL HT-37 TRANSMITTER

Hallcrafters new HT-37 employs a carefully designed phasing type sideband generator developed by the famous team which produced the HT-32A. At signal frequency all tubes, most components and voltages are equal to the HT-32A. The wealth of production and engineering skills which has made the HT-32A the most wanted transmitter now provides you the best in a phasing unit at a moderate price. The HT-37 is a complete table top, high efficiency Amateur band transmitter providing s.s.b., a.m. or c.w. output on 80, 40, 20, 15 and 10 metres.

### FEATURES

- ★ 144 watts plate input (p.e.p. two-tone).
- ★ Five-band output (80, 40, 20, 15, and 10 metres).
- ★ All modes of transmission—c.w., a.m., and s.s.b.
- ★ Unwanted sideband down 40 db. at 1 Kc.
- ★ Distortion products down 30 db. or more.
- ★ Carrier suppression down 50 db.
- ★ Modern styling.
- ★ Instant c.w. cal. from any mode.
- ★ Both sidebands transmitted on a.m.
- ★ Precision v.f.o.
- ★ Rugged heavy duty de luxe chassis.
- ★ 52 ohm pi network output for harmonic suppression.
- ★ Dual range meter for accurate tuning and carrier level adjustment.
- ★ Ideal c.w. keying.
- ★ Full voice control system built in.
- ★ Tubes and functions:—
  - Two 6146 power output amplifiers.
  - 6CB6 variable freq. osc.
  - 12BY7 r.f. driver.
  - 6AH6 first mixer.
  - 6AH6 second mixer.
  - 6AB4 crystal oscillator.
  - 12AX7 voice control.
  - 12AT7 voice control.
  - 6AL5 voice control.
  - 12AX7 audio amplifier.
  - 12AT7 audio amp. and carrier oscillator.
  - 12AT7 audio modulator.
  - Two 12AT7s balanced mod.
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  - 5V4G l.v. rectifier.
  - OA2 voltage regulator.

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- Operation: Power off, standby, Mox, Cal., Vox.
- Audio level 0-10.
- R.f. level 0-10.
- Final tuning: 80-40-20-15-10 mx.
- Function: Upper sideband, lower sideband, d.s.b., c.w.

- Carrier balance.
- Calibration level, meter range.
- Driver tuning 0-10.
- Band selector: 80-40-20-15-10 mx.
- High stability v.f.o.
- Microphone connector.
- Key jack.

#### Rear Chassis:

- Co-ax antenna connector.
- Line fuse.
- Control connector.
- A.c. power line cord.

Price (tax included) £331-17-6

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Sole West. Aust. Agent: NEIL JAMES & CO., David Jones Arcade, Barrack Street, Perth.



# INDUCTANCE, CAPACITANCE, & RESONANCE

## AN "A.R." DATA SHEET

The following provides a collection of useful information regarding capacitance, inductance, resonance, and tank circuit design. In addition, data is provided regarding air wound coils.

### TANK CIRCUIT CAPACITANCE

The required tank circuit capacitance in any transmitter is:

$$C = \frac{3600 I_p}{f E_{pr}} \dots \dots (1)$$

where C = total circuit capacity in pF.  
 $I_p$  = total plate current of the valve(s) in mA.  
 $f$  = frequency in Mc.  
 $E_{pr}$  = plate to cathode voltage in volts.  
 (for a coil Q of 12)

### L AND C REQUIRED

The combination of inductance and capacity required for resonance in the main Amateur Service frequency bands is as follows; this is based upon the relationship—

$$LC = \frac{25330}{f^2} \dots \dots (2)$$

Amateur Service Frequency	LC Product in $\mu\text{H} \times \text{pF}$
80 metres (3.5 Mc.)	2065
40 metres (7 Mc.)	517
20 metres (14 Mc.)	129
15 metres (21 Mc.)	57.4
11 metres (27 Mc.)	34.7
10 metres (29 Mc.)	30

Table 1.

Thus from equation 1 and equation 2, the required inductance and capacity for any Amateur band can be calculated.

Note that capacity refers to the total circuit capacity, and the required variable capacity will be less by the amount of capacity (i.e. the "strays") inherent in the circuit.

E.g.: A 10 pF. condenser would require an inductance of 206.5  $\mu\text{H}$ . to resonate at 3.5 Mc. ( $10 \times 206.5 = 2065$ , see Table 1). A coil of 5  $\mu\text{H}$ . would require a tuning capacitance of 6 pF. for resonance in the 10 metre band ( $5 \times 6 = 30$ ).

### WIRE GAUGE

In designing tank circuit inductances it must be remembered that the circulating current in the final tank will be  $QI_p$ , where Q is the quality factor ( $\omega L/R$ ) and  $I_p$  is the measured plate current. Therefore the gauge of wire used in the plate circuit inductance must be heavier than required solely to carry the plate current normally considered flowing in the circuit.

Table 2 takes all factors into account and suggests wire sizes which are adequate for conventional design.

Frequency of Circuit	DC Power Input	Wire Gauge SWG
Up to 3.5 Mc.	300 watts	16
3.5 to 7 Mc.	"	14
7 to 14 Mc.	"	14
14 to 21 Mc.	"	12
21 to 28 Mc.	"	10
Up to 3.5 Mc.	150 watts	18
3.5 to 7 Mc.	"	16
7 to 14 Mc.	"	16
14 to 21 Mc.	"	14
21 to 28 Mc.	"	12
Up to 3.5 Mc.	75 watts	24
3.5 to 7 Mc.	"	22
7 to 14 Mc.	or	20
14 to 21 Mc.	less	18
21 to 28 Mc.	"	16

Table 2.

### CONDENSER SPACING

In a plate modulated final p.a. the condenser must be able to withstand the applied d.c. plate voltage plus the modulation signal, thus the peak plate voltage rating required is about twice the applied d.c. plate voltage.

In Table 3 are suggested spacings for final plate circuit condensers. All shafts should be bonded direct to earth by a flexible lead to prevent any possibility of the operator being electrocuted in the event of a breakdown in insulation, or in the case of condenser being above earth, use an insulated coupling.

Applied DC Plate Voltage	Suggested Plate Condenser Spacing
2000 volts	0.150 inches
1000 "	0.05 "
750 "	0.03 "
500 "	0.015 "

Table 3.

### CAPACITY VARIATION

In any circuit, the required capacity variation ( $dC$ ) to tune from a high frequency ( $f_1$ ) to a lower frequency ( $f_2$ ), both measured in Mc., is given by the following equation:

$$dC = C [1 - (f_1/f_2)^2] \dots (3)$$

where C = total circuit capacity in pF.

### INDUCTANCE

The inductance of an air wound solenoid can be calculated from its dimensions, and for optimum Q ( $\omega L/R$ ) the ratio of length to diameter should be about twice.

$$L (\mu\text{H}) = \frac{a^2 N^2}{9a + 10b}$$

$$\text{or } \frac{0.2 a^2 N^2}{3a + 9b + 10c} \dots \dots (4)$$

where a = coil diameter in inches.  
 b = coil length in inches.  
 c = wire diameter in inches.  
 N = number of turns.

Thus N/b gives the winding pitch in turns per inch.

Table 4 gives the details of coils made by various manufacturers, and may prove useful in designing a suitable coil. The information has been collated from current details supplied by the makers.

Manufacturer's No.	Reference	Len. in.	Turns per in.	Gauge	L. $\mu\text{H}$
3001	404T	1/8	2	4	18 0.4
3002	408T	1-08	"	6	18 0.96
3003	416T	1-16	"	16	20 3.2
3004	432T	"	"	32	24 12.7
3005	504T	"	2	4	16 0.56
3006	508T	2-08	"	8	18 1.4
3007	516T	2-16	"	16	20 4.9
3008	522T	"	"	32	24 19.2
3009	604T	"	1/2	4	16 0.94
3010	608T	3-08	"	8	18 2.9
3011	616T	3-16	"	16	20 10.9
3012	622T	"	"	32	24 42.5
3013	804T	"	1	3	4 16 1.9
3014	808T	4-08	"	8	18 4.8
3015	816T	4-16	"	16	20 19.9
3016	822T	"	"	32	24 73
3017	1004T	1 1/4	10	4	14 2.56
3018	1008T	5-08	"	8	16 9.4
3019	1016T	5-16	"	16	118 37.5
3020	1204T	1 1/2	10	4	14 4
	1208T	"	"	8	14 14
	1216T	"	"	16	16 16
	1218T	"	"	18	16 20
3021	1404T	1 3/4	14	4	14 4.5
3022	1408T	"	"	8	14 17.2
3023	1416T	"	"	16	18 16
3024	1408T	"	"	16	18 72
	1616T	"	"	32	28 280
	1604T	2	10	4	12 12
	1608T	"	"	8	14 14
3900	1608T	"	"	8	14 14
3901-1	1610	"	"	10	16 16
	1618T	"	"	16	18 18
	2004T	2 1/2	10	4	12 12
3905-1	2006T	"	"	6	12 12
3906-1	2008T	"	"	8	14 14
	2010T	"	"	10	16 16
	2404T	3	10	4	10 10
	2406T	"	"	6	12 12
	2408T	"	"	8	14 14
	2410T	"	"	10	16 16

Reference 1—Barker and Williamson, U.S.A.

Reference 2—Illumitronic Engineering, of U.S.A. It will be noted that the first two figures of the manufacturer's number state the coil diameter in eighth inches, and the last two figures give the winding pitch in turns per inch. Add an "8" suffix to all three-figure coil numbers, thus (0804T) gives a coil 6/8 ( $3/4$ ) diam. x 4 t.p.i. The trade name is "Air Dux".

Reference 3—William Willis Pty. Ltd., 428 Elizabeth St., Melbourne.

Note.—The gauge refers to B. & S. and corrections should be made if S.W.G. wire is used.

\* Length 3 inches only for "Willis" coils.

† Length 2 inches only for "Air Dux" coils.

‡ 20 gauge for "Air Dux" coils.

§ Length 10 inches for "Air Dux" coils.

Table 4.

# FOR BEGINNERS:

## A 2-VALVE SUPERHET. WITH BANDSPREAD & B.F.O.

Construction Hints and Alignment Data by A. F. W. Haddrell\*

THIS set is designed for a.m. and c.w. reception using multigrad valves, one a pentagrid converter (6K8) and the other a double triode (6SN7). The intermediate frequency is approx. 1600 Kc. A double triode (6SN7) performs the functions of regenerative detector and audio amplifier.

L2 is the aerial coupling coil and the r.f. circuit (L1-L3) is tuned to the signal frequency. C7 is a by-pass across the 1.5v. battery, used to bias the grid of the 6K8 and one half of the 6SN7 used as an audio amplifier.

The local oscillator circuit is formed by L3, C3 and C4. Condenser C3 is for band setting with C4 for bandspread.

The i.f. tuned circuit (or regenerative detector circuit) is L5 C5. (This needs to be a high C circuit to obtain good stability). L6 is the tickler coil for regeneration. (If L5 is wound to specification, it will be tuned to approx. 1600 Kc.) C2 is the regeneration control.

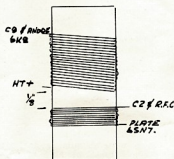
The second section of the 6SN7 is transformer coupled to the detector.

Looking on top of the chassis layout, from the front, the r.f. or input circuit is at left, with C1 below chassis. L1 and L2 are just behind it, and the 6K8 is to the rear of the coil. The oscillator padding condenser C3 is in the centre underneath the chassis and adjacent to the socket for L3-L4, with the 6SN7 to the chassis rear. At right, underneath the audio transformer T1, is the regeneration control C2. The bandspread condenser C4 is mounted on the front panel about 4" up from lower edge and a pair of terminals at the

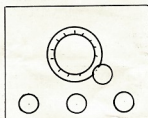
(Continued on opposite page)

\* 13 Reid St., South Morang, Vic.

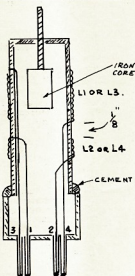
I.F. COIL



PANEL FRONT VIEW



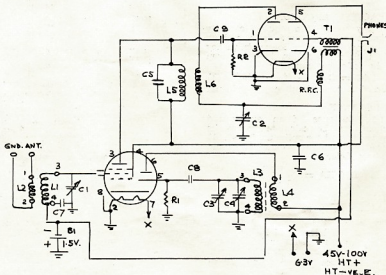
R.F. & OSC. COIL ARRANGEMENT



COIL LEADS TO BE DRESSED CLOSE TO SIDES OF FORMER.



VIEW UNDER COIL BASE



- C1, C2, C3—140 pF. (ex Ham Radio).  
C4—15 pF.  
C5—240 pF.  
C6—0.01  $\mu$ F.  
C7—0.0047  $\mu$ F.  
C8, C9—100 pF.  
R1—47K.  $\frac{1}{2}$ W.  
R2—1 megohm,  $\frac{1}{2}$ W.  
L1, L2, L3, L4— $\frac{1}{4}$ " diam. See Coil Table.  
L5—55 turns No. 30 en. close wound,  $\frac{3}{4}$ " diam. former.  
L6—18 turns No. 30 en. close wound, same former as L5.  
B1—1.5 volt cell.  
J1—Open jack.  
RFC—2.5 mH. r.f. choke.  
T1—Audio inter-valve transformer.

COIL TABLE

For L1 or L3

- Coil A—90 turns of No. 30 enamel, close wound.  
" B—65 turns of No. 28 enamel, close wound.  
" C—45 turns of No. 22 enamel, close wound.  
" D—24 turns of No. 22 enamel, spaced  $\frac{1}{16}$ ".  
" E—20 turns of No. 22 enamel, spaced  $\frac{1}{16}$ ".

For L2 or L4

- Coil A—20 turns of No. 30 enamel, close wound.  
" B—15 turns of No. 28 enamel, close wound.  
" C—15 turns of No. 28 enamel, close wound.  
" D—15 turns of No. 28 enamel, close wound.  
" E—15 turns of No. 28 enamel, close wound.

Frequency Range

Frequency Range	Coil A	Coil B	Coil C	Coil D	Coil E
1700-3200 Kc.					
3000-5700 Kc.					
5400-10000 Kc.					
9500-14500 Kc.					

side of the chassis are used for aerial and earth connections with a jack at the rear for headphones. No power supply is shown on the chassis, but 6v. for heaters and 45v.-100v. are required.

The chassis size for the set is 7" x 7" x 2" and the front panel is 9" x 9" in size.

The i.f. coil is constructed on a 3" diameter former with no core (see sketch).

The r.f. coils are constructed on 3" diameter formers (with iron cores) cemented to standard 4-pin plugs (see sketch).

Around the four-pin socket for the coils a screen from an old 1 1/2" i.f. transformer should be fitted.

## ADJUSTMENTS

To test the receiver, apply power, and first try out the i.f. circuit. Put a coil in the h.f. socket only and both valves in their sockets and advance C2 from minimum capacity, when a soft hiss should be heard, indicating oscillation. If this occurs before approx. half capacity, remove turns from L6, but if a hiss is not heard add turns, after reversing connections to L6. It is not advisable to have oscillation commencing before mid-capacity.

Plug in an oscillator and r.f. coil for a band on which signals are likely to be heard. (Note coils are arranged so that only a minimum number are required, i.e. some coils are used on two bands.) Say coils C and D are inserted,

set C1 at mid-scale and turn C3 slowly around mid-scale until a signal is heard, then tune C1 for maximum strength. On lower frequency ranges, when it is possible to find two tuning spots on C1, the lower frequency peak is the correct one. The coils are so arranged that the local oscillator frequency is 1600 Kc. higher on the three lower ranges, and lower on the high range than the incoming signal frequency. (This circuit originally appeared in

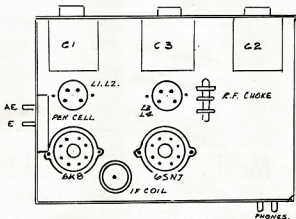
"QST" in 1942—Ed.) Iron cores are used to adjust this requirement.

The regeneration control can be set for maximum sensitivity whilst tuning, and the bandspread control is set for fine tuning.

The power drain is of the order of 10 mA. (more modern valves such as 6U8, etc., could probably be tried to advantage).

If any points are not clear, a s.a.e. to the writer will bring a reply.

## UNDER CHASSIS VIEW



# MULTIBAND FOLDED DIPOLE

R. E. W. MAY,\* VK1PM

AS the sunspot cycle approaches its minimum level and our lower frequency Amateur bands become more useful, the problem for many of us is, how to fit the longer length of wire needed for the usual half-wave dipole into the available space. For instance, the normal 80 metre dipole requires about 134 feet between supports.

One simple and successful multiband antenna is the so-called "100 Foot Flat-Top", centre fed with open wire tuned line. A more recent version, known as the G5RV Multiband Antenna

("A.R.", Jan. 1961) uses co-axial transmission line.

The standard half-wave folded dipole is well known for the excellent match presented for 300 ohms line over a wide band of frequencies. However, this antenna normally will not work on even harmonics, that is, if it is cut for the 80 metre band it is not available on the 40, 20 or 10 metre bands, as a folded dipole.

The multiband folded dipole now described, may be regarded as a "cross" between the "100 Foot Flat-Top" and the half-wave folded dipole. It carries the advantages of both these types, plus an extra advantage of its own.

Firstly, it has the wide band properties of the folded dipole. It will operate efficiently on all bands above the fundamental with a small s.w.r. on the line for each band. It may be fed with open wire line, 300 ohm ribbon, or, in G5RV style, with co-axial line (34 feet of open wire line, or 29 feet of 300 ohm ribbon connected from antenna, to any length of 72 ohm co-axial line). It requires only 80 to 100 feet between supports, for 80 metre operation and above.

Fig. 1 shows the basic design for the antenna, for operation on 80, 40, 20, 15 and 10 metres.

Although the antenna is shown as 100 feet in length, the radiation from about 10 feet at each end tends to cancel on the lower frequency bands. Therefore, up to 10 feet, or even more, may be turned down at each end without appreciable decrease in effective radiating height, so that the antenna may be strung between supports about 80 feet apart.

The radiating section may be made of ribbon, or of open wire as shown in Fig. 2. The resistive point on the open wire feed line occurs at 34 feet from the antenna, but for practical purposes, any length of transmission line may be used, as the s.w.r. is small on any band.

This antenna (Fig. 2) was the only one used by the writer, operating on the 80, 40, 20 and 15 metre bands, in the recent Remembrance Day Contest.

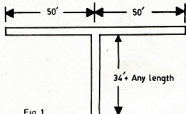


Fig. 1.

Fig. 1.—Multiband Folded Dipole, 80 to 10 mx bands. Dimensions are not critical. 300 ohm ribbon may be used without regard for velocity factor.

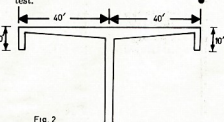


Fig. 2.

Fig. 2.—Open Wire construction for restricted space. Spacing between top and bottom radiating elements at centre of antenna allows for about 2 feet of sag when suspended at each end only. Spacing of feed line and turned-down end sections is as for normal open wire transmission line.

\* 20 Meehan Gardens, Narrabundah, Canberra.

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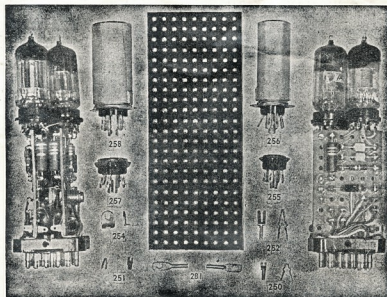
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# Official Opening of New H.Q. Building for N.S.W. Division, W.I.A.

SOME few years ago the Council of the N.S.W. Division of the Wireless Institute of Australia formulated a plan which has culminated in the opening of the extensions to the headquarters property of the Division at 14 Atchison Street, Crows Nest.

The property, as originally purchased, consisted of a house situated in a central position on the north side of the harbour, one which is of easy access by public transport, and one with excellent parking facilities. The land on which the house is built allowed of considerable extensions to enable a building to be erected in the foreseeable future to form the headquarters of the Division, which with its present membership of 1250 members, requires a building to house all the facilities of the Division and to provide a meeting hall which will accommodate the members at the general meetings, v.h.f. meetings, s.w.l. meetings, and at the A.O.C.P. classes which are run by the Institute.

The main hall, which has been erected at the rear of the premises, is a large one, some 60 x 30 feet, tastefully constructed in texture brick, and surmounts a basement which will house disposals and the Bulletin activities.

Despite the delays due to bad weather which has been experienced in Sydney during our "summer," the building was in due course completed only one month behind schedule.

The Official Opening occurred on 17th March, 1962, and was attended by some 300 members, their friends and XYLS.

The Opening Ceremony was performed by Wal Hannon, VK2AXH, who is well known as the only surviving member of the Foundation Committee which established the Wireless Institute here in Sydney in 1910; supported by the President of the Division, Bill Lewis, VK2YB; Mr. Jack, M.H.R.; Group-Captain Waddy, M.L.A.; Mr. Christain,

the architect; Mr. C. Carroll, representing the Superintendent Radio (Mr. Riley, who was unfortunately unable to attend); Ald. Hardwicke, Deputy Mayor of North Sydney.

The President in his opening address welcomed the dignitaries, members and their friends, and referred to the support which had been given by Divisional Council and members which had made this building a reality, and furthermore,



referred to the amicable relations which the Division has with, not only the P.M.G. Dept. through their officers, but also the assistance given to the Amateur Service recently by the members of the House of Representatives in Canberra. He thanked those members who had subscribed to the appeal for chairs which was organised so well by Frank Pearson, VK2ACQ.

Responding, Ald. Hardwicke, Deputy Mayor of North Sydney, stated that his

Council was pleased that yet another cultural organisation had chosen the North Sydney area in which to expand their activities, and wished the Division all success in their endeavours.

Mr. C. Carroll, P.M.G. Dept. representative, referred to the work of the Advisory Committee on our behalf, and also drew attention to the co-operation which the Department is always ready to give to Amateur and Viewer alike in cases of t.v.i., but stressed the importance of friendly relations between the Amateur and Viewer.

Mr. Jack, M.H.R., spoke on the outstanding public service given by the Amateur Service, referring to the work done by Amateurs during the disastrous floods some years ago and on the many occasions when the Amateurs have stepped into the breach and maintained communications in times of distress.

The final speaker, Mr. Waddy, further exemplified the importance of the Amateur Service in its capacity to provide ready trained operators for the Armed Services.

Wal Hannon, VK2AXH, reminisced on the past history of the Division in N.S.W. and referred to the work done by the many members through the 50 years of existence. Finally, Wal declared the extensions officially opened and unveiled a handsome plaque commemorating this historic event.

Our thanks are expressed to all those who assisted, especially in the final stages, to enable this event to proceed on schedule; to the many ladies who formed themselves, with Frank Pearson's assistance into an auxiliary, to provide afternoon tea for the large crowd attending; and to make this function one to remember.

## V.H.F.C.C.

Cer. No.	Call	Confirmations	144 Mc. 30 Mc.
1	VK2VO/T	100	
2	VK5GG		114
3	VK3QV	185	
4	VK2HE	102	
5	VK2HE		118
6	VK1LZ		112
7	VK6BE		300
8	VK2HO	132	
9	VK2ABR		143
10	VK2AZ		100
11	VK4BE		100
12	VK3FW	157	
13	VK4AZ		847

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" 3014	" " 8 "	8/5
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# ROSS HULL MEMORIAL V.H.F. CONTEST 1961-62 RESULTS

The Ross Hull Memorial V.h.f. Contest has passed and the Federal Contest Committee has pleasure in presenting herewith the results.

The new scoring system has brought forth many comments. We regret we cannot acknowledge each one individually, but we thank all those who have sent us their comments and we assure you that they will all be considered, when the next Contest is prepared.

The Contest Committee is very pleased to see from the letters received that the majority of contestants are in favour of the new scoring system, with perhaps a few adjustments, and some contestants suggest that activity has increased. However, the number of logs received was less than last year. The poor support of the Open Section seems to indicate that this section might as well be done away with as a separate section so that in future there is only one transmitting section, allowing all modes of transmission.

The duration of the Contest has come under fire again and some suggest that operators select a period of 7 or 14 days from the total operating period of two months for their Contest log. This, of course, would make it extremely difficult to cross-check logs. Another suggestion is that operating times be limited to evening hours and weekends. Suggestions have been plentiful and very helpful.

The general feeling seems to be that the densely populated areas have the advantage under the present scoring system and that some allowance is required in that regard. We have shown the location of each station, taken from the Call Book, alongside the scores so that interested operators can have a better idea what the situation is. This is another matter for review next year.

In conclusion, we would like to congratulate VK5ZDR for winning the trophy this year, and we also congratulate the other award winners.

We have had many queries about outstanding award certificates. We regret there has been a rather long delay in the supply of certificate blanks and want to assure all those concerned that their certificates will be forwarded as soon as the new forms are available.

Best 73 and good operating.

—Federal Contest Committee, W.I.A.

## TROPHY WINNER

VK5ZDR—M. J. McMahon .... 3357 pts.

## AWARD WINNERS

### Section A—Transmitting, Open

VK4PU—J. D. Purdon .... 1189 pts.  
VK5TN—B. G. Tideman .... 1134 "  
VK6HK—D. F. Graham .... 889 "

### Section B—Transmitting, Phone

VK1VP—E. Penikis .... 116 pts.  
VK2ZLP—D. L. Price .... 1359 "  
VK3ZEA—G. W. Small .... 1619 "  
VK4ZAZ—J. L. Bickford .... 2038 "  
VK5ZDR—M. J. McMahon .... 3357 "  
VK6BE—J. R. Elms .... 2394 "  
VK7ZAQ—R. K. Emmett .... 905 "  
VK8AV—A. E. V. Molineux .... 220 "  
VK2TR/9—R. Taylor .... 386 "  
ZLIAUM—C. Maddock .... 670 "  
ZL3RK—T. J. McKenzie .... 650 "

### Section C—Receiving

WIA-L2211—R. Abernethy .... 1660 pts.  
VK4—T. H. Lane .... 69 "

## INDIVIDUAL SCORES

### Section A

VK4PU—Woombye .... 1189 pts.  
VK5TN—Adelaide .... 1133 "  
VK6HK—Wembley Downs .... 889 "  
VK6VF—Wembley Downs .... 197 "

### Section B

VK1VP—Canberra .... 116 pts.  
VK2ZLP—Armidale .... 1359 "  
2ZFB—Cronulla .... 1288 "  
2ZCF—Sydney .... 847 "  
2ZGL—Inverell .... 684 "  
2ABR—Milperra .... 653 "  
2ZDA—Miranda .... 517 "  
2ZAD—Delunga .... 480 "  
2ZGM—Ungarie .... 344 "  
2ZBI—Via Junee .... 135 "  
2ZBM—Lismore .... 10 "  
2HE—Check log  
2ZEX—No mileage shown, disqual.

VK3ZEA—Rainbow .... 1619 pts.  
3ZGZ—Via Mildura .... 1221 "  
3ZGV—Morwell .... 724 "  
3QG—East Malvern .... 547 "  
3ZMK—Ferntree Gully .... 505 "  
3ALB—Melbourne .... 437 "  
3ZDO—Melbourne .... 370 "

## Section B (Continued)

3ZKM—Fernree Gully .... 347 "  
3ZLP—Via Geelong .... 283 "  
3ASW—Via Renmark .... 279 "  
3ZMC—Frankston .... 235 "  
3AJI—Newport .... 165 "  
3FW—Canterbury .... 147 "  
3ANG—Bentleigh .... 68 "  
3NB—Camberwell .... 67 "  
3GW—Rainbow .... 23 "  
3ZKO—Frankston .... 15 "  
VK4ZAZ—Rockhampton .... 2038 pts.  
4ZBE—Townsville .... 1538 "  
4ZHG—Gympie .... 887 "  
VK5ZDR—Henley Beach .... 3357 "  
5AW—Penola .... 3016 "  
5ZBR— .... 914 "  
5ZBL—Vernmont .... 728 "  
5ZDI—Penola .... 594 "  
5ZDA—Salisbury .... 369 "  
5ZBC—Mile End .... 166 "  
5ZCD—Via Bordertown .... 14 "  
5CG—Check log

VK6BE—Lesmurdie .... 2394 "  
6ZAA—Mt. Pleasant .... 1461 "  
6RY—Palmyra .... 852 "  
6ZDS—South Perth .... 625 "  
6ZCD—Albany .... 563 "  
6MM—Nedlands .... 453 "  
6FM—Mt. Pleasant .... 438 "  
VK7ZAQ—Hobart .... 905 "  
7ZAO—Hobart .... 815 "  
7ZAV—New Norfolk .... 456 "  
7ZAC—Hobart .... 141 "  
7ZAX—Hobart .... 67 "

VK8AV—Daly Waters .... 220 "  
8AU—Batchelor .... 60 "  
VK2TR/R—Port Moresby .... 386 "  
ZLIAUM—Auckland .... 670 "  
ZLIAKY—Papakura .... 340 "  
ZL3RK—Christchurch .... 650 "

## Section C

WIA-L2211—R. C. Abernethy, Sydney .... 1660 pts.  
VK4—T. H. Lane, Brisbane .... 69 "  
WIA-L3074—J. M. Hilliard, no mileage shown, disqualified.  
VK5—K. A. Wehr, no mileage shown, disqualified.

P.S.—Although listeners cannot agree with the stations on the mileage, the showing of distances is a requirement of the present rules and distances could have been worked out by use of a map and the Call Book—F.C.C.

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		Volts	Amps.						X Plates	Y Plates				
2AP1	2	6.3	0.6	250	1000	—60	—	52	0.110	0.13	Green	Medium	ES	U11
3BP1	2½	6.3	0.6	575	2000	—60	—	76	0.127	0.172	"	"	"	U14
VCR139A	2½	4	1.1	800	120	—10	800	64	0.217	0.217	"	"	"	PS12
3FP7	3	6.3	0.6	575	2000	—60	4000	76	0.1	0.14	"	Medium	"	U14
3AP1	2½	2.5	2.1	430	1500	—50	—	76	0.223	0.233	"	"	"	USMT
DG7/5	2½	6.3	0.3	—	1000	—	—	76	0.16	0.25	Blue	Short	"	B9G
5FP7	5	6.3	0.6	250	7000	—45	—	127	—	—	Green	Medium	MG	O
VCR517C	6	4	1	2000	525	—80	3000	160	0.12	0.14	Blue	Long	ES	CK12
VCR97	6	4	1	200	450	—100	2000	152	0.3	0.57	Green	Short	"	CK12

ES = Electro-static; MG = Magnetic. All above are electro-static type focus.

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- ★ Antenna input: Balanced or unbalanced.

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W.A.: KING'S PLACE (off 12 King St.) PERTH. 21-2126

# Correspondence

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

## GENTLEMEN'S AGREEMENT

Editor "A.R.," Dear Sir,

The literary eloquence of Mr. Jones no doubt will add to the ranks of the "fone only" clan but as far as I am concerned much of what he quoted is biased hogwash.

He appears to have completely forgotten the main issue at stake! Amateur Radio is our hobby and this is still a free country—even though we are forced to read, hear and watch what the great and almighty press wish.

Unlike the above gentleman, I am a lowly technical soul whose choice of chore is tele-communications in which field I come in contact with all types of equipment from plain c.w. to facsimile.

Even the most advanced communications system still uses c.w. as "the old stand-by". Perhaps it is a form of conservatism in telecommunication, but it still is, and will continue to serve its purpose long after Mr. Jones' technological forecasts.

May I ask him if he can still work 100% intelligible DX and have a good rag chew on 40 or 80 and still get a thrill out of it? Can he rake up some little 30 watter who can't speak English but can make himself understood with "Q" signs and still get a thrill?

Practice twice, Mr. J. I will like Hamming—you like phone—I like c.w. (and s.a.b.). You stick to your end of the band and I'll stick to mine and what's more, you stick to your band and let other people do and live the way they want.

—"Another VK3"

[Name supplied to Publications Committee and withheld by them.]

Editor "A.R.," Dear Sir,

Mr. Jones' recent letter is, of course, as ridiculous as his previous ones. It is devoted to a plea in the name of democracy, for the continuance of this one-man soap box, yet Mr. Jones fails to acknowledge the fact that, as yet, he has had no legitimate support in these columns for his wild claims.

Mr. Jones' assumption that those who replied to his previous correspondence "are the minority who are on c.w.," implies a lack of interest on the part of the remaining body of members, which is further evidence that Mr. Jones cannot be an indication of tacit support for his cause—this concept, of course, is ridiculous.

The statistics presented by Mr. Jones' soap-salesman friends were obviously compiled by a person with no technical knowledge of the subject with which he was dealing. Mr. Jones admits to having "spent many years in journalism," and his associate is alleged to have "degrees in economics from three countries," but I fail to see the connection with analysis of the frequency spectrum and rate of information transfer, yet we are expected to accept, even believe, these obviously fallacious claims. It is this apparent lack of correspondence has indicated the feeling of members on this subject, so I feel that no further purpose can be served by this interminable correspondence, or by the referendum proposed by Mr. Jones.

I would suggest that Mr. Jones may be better appreciated by his readers if he writes the Arabs and the world's Jewry, by the vast majority of Australian Amateurs.

—Ian N. Cousins, VK5IK  
Editor: "Splatter"

Editor "A.R.," Dear Sir,

This time, Mr. Editor, please don't exercise the editors' hatchet, until after some of us have an opportunity to reply to Mr. Roth Jones, who appears to have burst into song once more.

Mr. Jones' main difficulty appears to be the fact that so far, except for the efforts of his distinguished, but anonymous, business friend, all his vocalisation has been solo work. He appears to be unable to rustle up one single supporter. On the other hand, it is quite apparent that Mr. Jones' opponents are so numerous that their replies are an embarrassment to the Editor.

As far as facts and figures are concerned, Mr. Jones, you were given them last time, but you preferred to keep your head under its customary sand dune.

I quote Cyril Rylett's letter, "c.w. 34%, s.a.b. 32%, s.b. 32%," from the R.S.G.B. Bulletin, which is quoting the A.R.R.L. report. Even your businessman, no matter how clever he is, cannot refute those

Finally, Mr. Jones, most of the interested parties over here prefer to ignore your comments, since, in their opinion you are only trying to stir up an argument. I also have come to that conclusion. I suggest that you make use of your obvious talents in the next Federal election; if successful, you possibly won't be able to persuade the Amateur to part with his beloved c.w., but you could certainly give much needed support to the Amateur cause.

—Bob Elms, VK6BE.

[The above three replies, taken at random, are readers' opinions. Unless other readers can offer new facts, not discuss personalities, then correspondence on this matter will be closed.—Editor.]

★

## Emergency Services & S.S.B.

Following the recent disastrous bush fires in Victoria, Group Capt. W. R. Garrett, M.L.C., in whose Southern Province most of the fires occurred, spoke to C.F.A. communications people and learned that interference on the emergency channel had been quite serious and had hampered the handling of the fire fighting personnel.

In mentioning this to Geoff ZAC (ex3GT), the idea of a demonstration of what s.s.b. nets are doing every day on 7.1 Mc. was followed on and a date set for such a demonstration.

Group Capt. Garrett duly arrived at ZAC's shack on a Thursday afternoon at 4 o'clock and 12 active sidebanders were ready and waiting to go.

The method of clearing the air was to use a 500 cycle tone at ZAC's rig. ZAC functioned as the controlling station to carry out the following demonstration with the following stations in the net: 3JK Mornington, 30Z Kilmwood, 3HG Coleraine, 3AHO Kyabram, 3KBC Tomingley, 3XM Ormond, 3EF/M Gawler, 2AB Brunswick, 2ADV Foster, 2ABD Edgecliff, 3ZY North Balwyn. At ZAC's QTH all stations were 5 and 9 with the exception of 3EF, who was 5 and 6 from his car near Gawler.

The programme was carried out as follows:

(1) Each station was called in to identify itself and to give its location.

(2) It was explained that when a 500 cycle tone was heard all stations should cease transmitting and should listen. All stations using fast action vox.

(3) All stations were asked to insert carrier wave and to detune to give Group Capt. Garrett a demonstration of heterodyning by a number of a.m. signals at different frequencies. However, for the one minute of the demonstration, all that could be heard were a couple of low frequency tones, and it was pointed out that each station had relied on the other fellow to detune his rig. So this one was repeated with stations detuned various amounts up to about 3 Kc. This then resulted in a duplication of the chaos we sometimes hear on Sunday mornings on 7 Mc.

(4) The next demo. was to ask all 11 stations other than ZAC to hold an 11-way QSO, throwing the ball round as it were. This resulted in a most interesting performance, and it was noted that particular voices could be picked out and followed when more than one person was talking.

The next demonstration was to show how four stations could carry out two QSOs on upper and lower sideband on the same frequency. It was possible to tune from one sideband to the other and resolve each separate QSO without trace of interference from the suppressed sidebands, which disappeared below a strength 5 noise level that was prevailing.

Group Capt. Garrett replied to the stations concerned and thanked them for their interest in the emergency services. He promised to bring the details of s.s.b. before the special meetings of parliament which were convened to deal with the problems associated with emergency operations.

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We are heading into the winter months again and it has become apparent, as usual, that activity on the various v.h.f. bands is rapidly declining. Why? Surely the winter evenings are the best time of the year to enjoy on the air activity with Amateur Radio.

Admittedly the DX is not so common, but it is still there. Besides, there are other interesting on-the-air activities as well as DX hunting.

During the past couple of years, over two hundred and fifty stations have been heard from two metres in Melbourne, but at the present time you are lucky to hear more than four or five stations on the air on any one evening. This state of affairs also applies to six metres, and I understand that the other States are experiencing the same problem.

How about rectifying this position? For several years, the 2 metre band has been the focus of our hobby, but a good solid, all-the-year-round part of Amateur Radio.

Forsake the "idiot box" at least one night per week and make your signal heard on the other. 3ARZ.

#### NEW SOUTH WALES

**Projected:** Roy 2HO has been appointed Oscar co-ordinator for Australia. Support for this project in VK has been disappointing. It is not necessary to have an elaborate laboratory to participate in the project. Just normal 144 Mc. receiving equipment. Full details on the reporting procedure have been given in recent issues of "QST". Let's prove we are taking an interest in the area of space communications.

144 Mc.: S.s.b. is gaining a hold on 144 Mc. after several false starts. Stations heard on s.s.b. were 2AAB, 2RX, 2ZBW and 2ZVW. Most ex-citers are the 90 Mc. phasing type. Geoff ZGGM, of Ungarie, 250 miles west of Sydney, is using s.s.b. upper sideband, 120w, to a 4X150M feeding 33 elements on a freq. of 144.18 Mc. Geoff is looking towards Sydney, to get himself heard. Just north of Sydney, west. Another new station to the south of Sydney is 2ZNL, at Bulli, on 144.6 Mc.

Geoff's report has been received of hearing the Sunday broadcast of 2WI on 50 Mc. in Mudgee, 120 miles over mountainous terrain. With the decline of conditions on 3.5 and 7 Mc., the v.h.f. coverage has become important. Plans are in hand to increase the tx power and construct high gain antennae at Dural. DX reports of the 30 and 144 Mc. coverage should be sent to Tim 2ZTM.

The lecture at the April meeting was on s.s.b. for v.h.f. bands by Keith 2BK, a topical subject. Prior to Keith's lecture, new committee was elected for the coming year, so a new scribe for the next 12 months, give him your support and send him any news for inclusion in these notes. Details of DX, new stations heard, unusual conditions, new techniques, etc. 2ZDF.

#### VICTORIA

At the meeting for March, 25 interested to elect the following members to the management committee: President, Bill 3ARZ; Secretary, Len 3ZDP, Peter 3ZGM, Bruce 3ZMR, Ken 3ZKA, John 3ZLH, and myself. Thanks to the retiring committee members for their assistance during the past year.

Two members of the meeting discussed activities such as field days, fox hunts, scrambles, etc. Some lively criticisms were forthcoming and a number of new suggestions, alterations, and improvements will be further discussed.

The bands are already extremely quiet and even though winter is still a few weeks off, the usual lull is well in swing. Rex 3QW worked on 2A3KN at Broadwater on Monday 12th March and Tuesday 13th were heard on 120 Mc. but c.w. was necessary on the Tuesday. A new call on the 2 m.x band has James 3ZTL, located at 2000 ft. He runs 30w. to a 222 ft. tower with a GESB pre-amp.

Ron 3ZER is building tall controlled gear for 576 Mc., using large strings of 656a in both converter and tx. He is particularly interested to hear of others with tall locked gear. Mac 3QO, Jeff 3AUX and Ivan 3ASG have also been active on 576 Mc. Mac has a new 100w. 576 Mc. to 1c. yagi for use on 576 Mc., while Jeff

3AUX is about to attempt to convert a BC325 tx to the band.

New stations on 6 m.x are Terry 3ZOB at Hightest and Fred 3ZNT at Mt. Waverley. Alan 3ZAS was back on the band from his new QTH at Brighton only one week after returning from his honeymoon. Another Alan, 3ZCJ, is the proud father of his first harmonic, 3XFL and daughter are both well. Not so sure about Alan though!

The first of the 3 m.x daylight fox hunts was voted a success at the picnic and rag chase held at the final location afterwards. The next one takes place on 6th May and 6 m.x stations will be included this time. Meet at the loop in Studley Park near Dight's Falls at 2.30 p.m. if you are interested. 3ZLT.

#### QUEENSLAND

A few JAs have been in this month and openings occurred on 5th, 10th, 11th, 15th, 21st, and 26th March; possibly many other openings occurred of which I am not aware. The Russian t.v. station was heard on a number of other occasions also.

Ron 4ZBZ was mobile on the week-end of 24th and 25th March to the outback portions of Queensland and worked into Brisbane from Milmeran on 6 and 2 m.x. Ron also has frequent skeds with 222 on 6 and 2 m.x, and from the results obtained from these skeds and the outback trip, it is obvious that 6 m.x is far superior to 2 m.x for reliable, consistent, long-range ground wave communication.

The V.h.f. Group meeting was held at the home of 4ZBR, after which a supper of extravagant size and quality was served. The matters discussed related to the provision by v.h.f. types of communication to ensure the safety of the motorist who is driving through the woomba to Lockyer on the Easter week-end. A visitor to the meeting was Paul 6ZBV, who brought along a transistorised miniature 2 m.x 6ZAB, bright green miniature 2 m.x r.c. 4ZGD had a good idea, so he raced outside to his car and worked a VK9 mobile on 2 m.x.

V.h.f. types are getting ready for the annual W.I.A. Convention. Certain unusual types of equipment are being used, but I am not sure. I hope to give full details after the Convention takes place.

A few Amateurs are starting to get ready for Oscar II tracking, and it is hoped that it will not be left to a mere handful to uphold the honour of VK4 land. 4ZBT.

#### SOUTH AUSTRALIA

50 Mc.: For the month of March there have been no band openings at all on 50 Mc., however the appearance of a newcomer, interest in a new mobile has helped maintain interest. Ivan 4IB was portable over here, towards the end of March. Ivan had portable gear on 51.3 Mc. and worked quite a number of clubs. The high freq. Ivan was using may have resulted in some of the chaps missing him. Recent newcomers in this State on 50 Mc. include Howard 5ZBE, Ian 5ZGG, David 5ZDP, Ken 5AL and Carl 5SS. These stations represent quite an increase in activity and it is good to have them.

Speaking of new activity, Doug 5KK has got s.s.b. going on 50.01 Mc. Doug is using a phasing generator, although he has a P.S.P. is only 30-30w., the quality of the signal is excellent. Keith 5ZMK has his new 50 Mc. mobile going very nicely. Keith is running a QRP 100 W. on 50 Mc. and on a recent 50-60 mile trip enjoyed good contacts all the way. With the introduction of 2 m.x fox hunts, quite a number of the club and 2 m.x antenna w.r.x's in conjunction with their 6 m.x mobiles for some very interesting mobile-duplex contacts. The main item of 50 Mc. interest is that application has been made to the P.M.G. for permission to run a beacon station on 50 Mc. The beacon will be on 50.5 Mc., running 30w. on a omnidirectional antenna which will be used. Type A1 emission will be used at 15 to 20 w.p.m. and (most important) it will run on 24 hours a day, 7 days a week. The location will be (for the time being) at Geoff 5ZCJ's place in Adelaide. Further data will be given as time proceeds.

144 Mc. has been active and is being used lately for fox hunts, and quite successfully. On 30th Mar, three fox hunts were held. There was a reasonable number of foxes. On 31st March, 576 Mc. 5ZDX won all three hunts (on 144 and 288

respectively) some of the results were quite close. Having tried 50, 144 and 288 Mc. for fox hunts, we in VK5 seem convinced that 144 Mc. is the band to use.

Bill 5ZXX, near Melinda, has put up a 28 el. array on 144 Mc. and big signals are expected from him. Another 2 m.x man, Tony 5ZPMT, in Adelaide, is also active. In addition to announcing his engagement, Tony did quite a little visiting of local ground. Congrats, Tony.

**General News:** A V.h.f. Group meeting was held in March, the main item of interest being the 50 Mc. beacon. President Gary 5ZK was in the chair. Two chaps have recently returned from the Northern Territory; they are Eugene 8AV and John 5ZDL. Eugene was worked from Dally Waters on 50 Mc. during his long stay there. That doesn't mean the v.h.f.s., Neil 5ZAW, has passed his c.w. and is now 5WN. Neil will be missed on the v.h.f. bands. A number of members are now forsaking the v.h.f. bands.—V.h.f. Ed.: 5ZCR.

#### WESTERN AUSTRALIA

**March meeting:** 40 members attended at the D.C.A. workshops. Two new members were voted into the Group. After the general business, Vic 6VK gave an informative lecture on s.s.b., its generation and reception. It is hoped to get Vic to give follow-up lectures on this subject.

**March fox hunt** proved different to recent events. A large following of hounds turned out and many old dogs not seen lately were hunted. Vic 6VK gave an informative lecture on touch of humour when his vehicle was seen to be a Model T complete with long yagi 20 ft. long. The car started shorting out after the start! (By design or accident, Mac won't say.) Roy 6RY was the outright winner.

**Operations:** Ostar II. A committee was formed and a meeting held to coordinate the groups' efforts for tracking and reporting the Oscar II satellite. The receiving site will be Cedric's 6GTH in Perth. The antenna was built and designed and constructed the antenna mounting to track both azimuth and elevation. The antenna is mounted on a 100 ft. mast related from tape recordings of the actual signals received through two receiving set ups, made available by the members pooling their resources.

144 Mc. activity has increased as a number of the Group have purchased 5CR32 sets, ex stock. Main difference has been the treatment of the modulator. Some very interesting audio has been heard from these units.

50 Mc. slow Morse is run every night except Saturday by Roy 6RY and Mac 6MM from 2000 to 2030 hrs. There is a news exchange session on Sunday nights on 210 hrs. on 288 Mc. and Roy 6RY. All stations are invited to report news items for the V.h.f. Group Bulletin and inclusion in the 50 Mc. s.s.b. column.

S.s.b. has gained a number of converts, who are building gear for 50 Mc. Kevin 6ZCB has almost completed an impressive unit and Vic 6VK is re-building his 50 Mc. s.s.b. Mac 6MM has been operating s.s.b. for some months now. Some of the local Amateurs are discussing and planning to build s.s.b. equipment prior to going all out on s.s.b.

Two new calls have been heard on 50 Mc. lately, John 6ZDN and John 5ZDX. Welcome to v.h.f. and especially to any other new stations we have not heard.

**Amateur Radio** received a boost locally when the 144 Mc. club, which had been dormant for some time, club and operated a radio controlled and timed hill climb as part of AHR rally. Pat 6PH, Len 6ZCS and Alvin 6ZDL participated, using commercial gear loaned to the club, which had P.M.G. sanction to use the freq. provided. These members were thanked by the sporting body for helping to make the rally a success.

288 Mc. and above, no news is to hand regarding these frequencies. Have heard 6ZPDR and 6ZDZ on 288 Mc. may be more information next month. 6ZDR and 6ZDZ.

#### NORTHERN TERRITORY

A bit of activity heard on 6 m.x at the moment as I write, the band is open to JA in a sort of fashion. JAs have been heard and worked on many days during March. Unfortunately there has been no activity on 144 Mc. in the Territory now, 8AV has returned to VK5. 8AU.

(Continued on Page 16)





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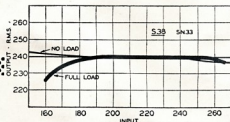


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# SIDE BAND

## BRITISH PRODUCTS

When high quality sideband transmitters and receivers are mentioned, most Australian Amateurs immediately think of the impressive array available from the U.S.A., but making an impression on the Australian market are some products of K.W. Electronics, of Kent, England. Quite a number of VKs are already using the K.W. "Vicerooy" s.s.b. transmitters and there are now three models, the Mark I., II., and III. in use in various parts of the world. A disadvantage of the Mark I. "Vicerooy" was the upper sideband only being available on 40 mc, but this has been amended in the Mark II. and III. models. The s.s.b. is generated at 485 kc. and a crystal lattice filter is used for this purpose. A high stability temperature compensated Clapp v.f.o. is used, tuning from 3005 to 3705 kc., resulting in s.s.b. output in the 80 mc band. Suitable crystals are used in the second mixer to give output in the other bands, 40 to 10 metres, with i.s.b. on 80 and 40, and u.s.b. on 20, 15 and 10. A pair of 6146 tubes in Class AB1 in the final give 180 watts p.e.p. input, the output circuit being a pi-network and the final stage is neutralized and completely screened as a t.v.i. precaution. A sample of the output is used to provide automatic level control, resulting in a decreased average level of output without spurious and objectionable distortion. C.W. is also available and a lower level of a.m. is possible by inserting a carrier to about 90 watt input level. Vox with anti-trip is incorporated and is also used to give break-in on c.w. The mk. II. "Vicerooy" has a separate power supply, while this is included in the cabinet of the mk. III.

The KW77 communications receiver is a fine companion for the "Vicerooy" transmitters. The physical appearance is very attractive and while it may have excellent XYL appeal, the design behind the front panel will be appreciated by today's discerning amateur. This receiver has a crystal controlled front-end, covers all Amateur bands from 160 mc to 10 mc, has a selectable sideband, and a choice of 12 selectivity gain bands from 0.5 kc. 1.5 kc. and 3 kc. at the -6 db. points. The second intermediate frequency is 50 kc. and an L-C filter, made by the manufacturer, is used. A bandpass is employed. The inductances are shielded in cans to give best possible circuit isolation for optimum spurious response figures. The maximum frequency coverage is 160 kc. on any one band so that the 10 mc band is covered in three segments, 28.0-28.6, 28.6-29.2, and 29.2-29.8 Mc. The performance figures claimed are for sensitivity, 0.5  $\mu$ v. for a 10 db. S/N ratio and a frequency stability of better than 100 c.p.s. after warm up. The physical dimensions of the KW77 receiver are 16 x 6 1/4 x 12 inches.

**MODIFICATIONS TO K.W. "VICEROY" MK. I.**  
The lack of lower sideband on 7 Mc. has been a serious disadvantage to owners of the "Vicerooy" tx Mark I. It is fairly easy to modify the Mark I. for lower sideband production on 7 Mc. and the details hereunder.

### Components required:-

- 1 only 3-pole M/B relay, contacts normally open.
  - 3 only 110 pF. trimmer capacitors C1-3-3.
  - 2 only 60 pF. silver mica capacitors C4-5.
  - 1 only 4815 kc. crystal.
- The relay can be operated from the 250v. 500 ma. 50 Hz. a.c. supply. The purpose of the relay is to switch in additional capacitance across the mixer transformer IPT4 and the grid input to the second mixer. This relay can be operated from the spare 40 metre connection on the rear section of the wave change switch.

Step 1.-Insert C1 and C4 (paralleled) between ground and anode of V2B through relay contact 1. Contact closed only on 7 Mc.

Step 2.-Insert C2 and C3 (paralleled) between ground and anode of V2A through relay contact. Contact closed only on 7 Mc.

Step 3.-Insert C3 from hot end of L5 (in parallel with C49) through relay to ground. Contact closed only on 7 Mc.

Step 4.-Replace existing 40 mc crystal with one of 4815 kc.

Step 5.-Re-resonate anode coil L1A at 3630 Mc.

\*Local agents, R. H. Cunningham Pty. Ltd.

## Phasing, Xtal Filters, Balanced Mod., Linear Amps., Vox

Sub Editor: BUD POUNSETT, VK2AQJ,

6 Alice Street, Queanbeyan, N.S.W.

ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

Step 6.-Adjust C1, C2, C3 and L1A for maximum drive in "tune" position.

The dial calibration should remain the same as before. It is advisable to conduct any tests into a dummy load and to check output against a frequency meter.

The adjustments listed under Step 6 are the only ones which can be made without readjustments would impair the performance of the transmitter on other bands.

Many thanks go to Bob VKXML for supplying the details on the K.W. equipment.

### S.S.B. DX CONTEST

The week-end of March 24/25 was devoted to the 1982 "CQ" World-Wide S.S.B. DX Contest in which many VK stations participated. Conditions were generally quite good in Eastern Australia and most Eastern States contestants would have had little trouble in making W.A.C., particularly on Sunday afternoon when, it seemed, the whole world was on 20 mc at the one time.

This Contest was a very well mannered affair without the dog-eat-dog aspect of some past experiences of a.m. and c.w. days. Possibly the reason for this is that operator's nerves are far less frayed by the lack of screaming heterodynes. The superior readability of sideband and the operating convenience afforded by Vox also makes for much faster exchanges.

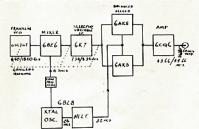
There are some lessons to be learned from a contest such as this. It is essential that VK be employed so that the operator is not slowed down by having a switch or worse, switches to throw. Transceiver-type tracking of rx and tx would eliminate the need to net, tuning the rx automatically positions the tx on the same frequency. An alternative to this is to use a proximity switch on the v.f.o. control so that when one puts a hand near the v.f.o. control knob, the netting circuit is operated. "QST" has described a very simple such device called "Proxos".

A good over-drive monitor should be employed, one is included to get a little anxious and turn up that audio gain. Of course the only way to be sure is to use an oscilloscope. Automatic level control, similar to that used in the VK60N (C49) "Peb" (S49), not only removes this worry, but your average level or "talk-power" is greatly increased. A speech compressor is an a.m. modulator, but only uses a mere handful of components.

Now is the time to start preparing for next year's battle and now is also the time to send your log to "The CQ Sideband" Editors, 12 Elm St., Lynbrook, New York, U.S.A. The deadline is for your log to reach there not later than May 30, 1982, so DO IT NOW.

### HETERODYNE V.F.O.

Last month mention was made of the v.f.o. control that VK3AHL has on the 288 Mc. band. Fig. 1 shows a block diagram of the heterodyne v.f.o. unit that Lance uses in his 50 Mc. equipment which in turn drives the 288 Mc. unit.



You will notice that at no time is the actual variable oscillator's frequency multiplied up to the output of the 6.5 Mc. crystal oscillator. It is multiplied in frequency. While some may say that this adds up to a lot of components and hence, the end result of superb stability fully justifies this.

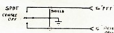
Some of you may give thought to applying this technique in producing a v.f.o. for that 3 Mc. phasing exciter to give a really stable signal on 40 mc.

### 40 AND 80 METRE DX

I know that quite a few of you have been working all sorts of DX on 3.5 and 7 Mc. How about sending the details, frequencies, times etc. so forth to Al Shawcross, who runs the DX section. Al will be delighted to receive these reports and it will help to spur some of our other sidebanders to greater achievements.

### KWM3 CONTROL CIRCUIT

Some of us are lucky enough to have a KWM3 to play with so this item, taken from the S.S.B.A.R.A. "Sidebander" should be of interest. It was written by KZSSW, Box 2515, Balboa, Canal Zone, and appeared in the December "Sidebander".



Without buying the handy-dandy control box for the KWM3, push-to-talk operation is not normally available with this little gem. Also disabling the vox, to prevent noisy Jr. Ops from tripping it entails lifting the lid and reducing the vox gain. This is not always convenient. Here is a simple, cheap way around the situation. Obtain a single-pole double-throw switch with a "centre off" position, two lengths of shielded phone cable and two R.C.A.-type phone-pin plugs, along with a bracket to mount the switch in a convenient position. Proceed as follows:-

1. Attach phone plugs to one end of each cable.
2. Connect centre conductor of one cable to end terminal of switch.
3. Connect centre conductor remaining cable to other end terminal of switch.
4. Insert one pin plug into PTT jack of KWM3 or 32S1.
5. Insert other pin plug into phone patch jack on WMO or 32S1. (Note: If this jack is in use connect lead in parallel with existing lead.)
6. Test operation as follows: With switch in centre position, operation should be normal vox. With switch in position to ground out PTT, the switch is in "eyed on" operation. With switch in position to ground the phone patch plug, all audio input will be grounded so vox will not operate, and the rig will be "receive only".
7. Mount switch in a convenient position.

The Publications Committee requests all readers to forward details of apparatus they desire to build. Technical description and photographs of equipment are particularly welcome.

## S.S.B. CRYSTALS

Set of Five Gold-Plated Matched Crystals

Mounted in HC6U Holders Suitable for 455 Kc. I.F.s

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## BRIGHT STAR RADIO

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### VICTORIA

Last general meeting of the Group, 11 members were present. Suggestions for the running of the construction night were put forward and a date of 21st March was fixed. Noel L3101 reported that 10 mx was wide open on 25th March; he heard the following stations 5 and 9: VK6HK, VK6QJ, VK6VCY and ZL2ABN. Noel has completed the construction and erection of a W8JK antenna and is receiving very good results from it, other antennae in use are a 20 mx doublet and also a 15 mx doublet. Noel has now settled down in his new shack, being a spare bedroom, and is all set for the winter months. I wish to welcome a new s.w. listener who is very keen, to the Group, the new member is Noel's XYL. Mac L3974 has recently purchased a 40 ft. steel tower with rotating mast and turning indicator. The only thing holding up the project is permission from the Council to erect it. Mac was active in the recent S.S.B. Contest, he heard 50 countries during the Contest. During the month, Ws were heard during the mornings and also a few Europeans.

Maurie L3055 is still listening and climbing steadily up the DX ladder, latest cards received by Maurice are UB5WF, 15GN, HA8WS.

Craig L3093 is eagerly waiting for a 2 mx converter which he is getting for a 2 mx converter. Craig is getting for a 2 mx converter a 32Z rx from an Interested Amateur. He hopes soon to be receiving on 2 mx.

Ian L3045 VK3ZHR has had a long time to construct a 2 mx band and has now under construction a xtal locked converter and tx for 2 mx.

Ian L3045/VK3ZHR has recently become very interested in hi fi stereo sound. He recently purchased a stereo amplifier and together with his hi fi system, he has been listening to High School still finds time for listening to the DX, but as yet has not constructed a tx for 2 mx, however plans are being put together for the 2 mx.

Twelve members attended our first visit for the year, to Channel 7 tx at Mt. Dandenong. The visit was a success, we had a good time, saw the main tx, the emergency tx, the micro-link rx and also the plumb's delight, being the antenna and antenna support. We also saw the technician on duty, who we later found out was VK3AWA, explained in detail how everything works, we were taken up to the top of the radio tower, where we saw the outside broadcast van which could be fed into the main tx if required. It seems the only way to get a tx at Channel 7 is to be an Amateur because out of the staff of five, there are four Amateurs.

Other visits have been arranged for the next three months by Ian Woodman. They are: May 4, Rockbank receiving station at 8.30 p.m.; June 1, Digby receiving station at 8.30 p.m.; July 1, Moorabbin Radio Club at 8 p.m. Persons requiring transport for the above visits meet at 478 Victoria Parade one hour before the start of time, 20 mx. So chapters will forget to attend, after all the visits are arranged for your interest.

Someone called Ian L3006 alias VK3ZBI, who tells me was the special UZ spy at Warrnambool at our S.w.I. Convention. He reports that was not a success, the night was very quiet, Peter's (3FX) Holden station, sedan with nine people on board, seeing the sights of Warrnambool. Did the Mt. Gambier boys go to the Olympic pool, a swim or to catch mermaids with their one metre haul?

What Amateur had trouble making contact until he used a microphone that worked? Is that the fellow that had a xtal set for the tank coil of a tx, then demand a QSL card for having received the signal? The listeners got it.

Maurie and Ian called CQ 6 mx for ten minutes without success, but finally scored a contact when the h.f. was tuned for the first time. The QSL card was handed to Ian. Street was Peter's (3FX) shack. It burst at the seams when 18 listeners tried to squeeze into it. Robert Young still was around at the time. After the 10 minutes of Er in on Saturday night, (Sorry Ian cannot tell, but it had nothing to do with radio, hi!) VKs 3WK and 3FZ drove through the town, up to the top of the Hill to show us the volcano crater. Yes we saw it, we almost ended up at the bottom of it!

What the listeners that had a 20 mx doublet 6 mx signal was 2VK? It ended up a terrific

contact with 3WK who talked us right into the back yard of the hotel.

A well known Amateur from Smoko stood up and gave a severe rebuking while in contact with the boys attending the Convention. Have you got rid of the xtal set yet Arthur? Eric Treblecock was seen distributing a mass of 351 cards and collecting just as many to take back to Melbourne.

The Mt. Gambier gang decided to convert their 28B Mc. gear to 50 Mc. band, where 32BI and 3WK were operating. We heard a rumour that new coils brought it down to 70 Mc, but then success was slightly abused. The official statement read "Owing to mechanical difficulties, we will not be able to operate." Hope you got the damage repaired, boys. So beware, this set will be getting information at the next Convention. See you there. Well now chaps, the above information is the story of what went on at the Convention, rather amusing I think.

All members and myself wish to thank the Amateur at Warrnambool for their hospitality and arrangements for visits to various places of interest. Without the help of these Amateurs the Convention would not have been such a success. I succeeded in making 10 contacts. Peter 3FX and Bill 3WK for their help.

### RADIO MAIL

The mails received this month are from the following: Peter Drew, Don Grantley, Afton Wescott, and Chas. Abernethy.

Eric Treblecock, this year has heard 92 countries, 33 zones and has sent out 269 reports. This month's inward cards include UA1KID (France) Japans, which he sent via air mail, which is a new one. Others for the month so far are J20ML, HK69DZ (Kure Island, the thing from the country), KR0JL, VK4CJ, SM7BY, VK4AD, VK4AK, VK4AL, VK4AM, VR1M, VR2EB, K2AGJ (YL), W8MM (3.5 Mc.), VJ1MA, ZC4TH, ZL2AYL, ZS2UR, and the VK4KZ, long list entries total 252,708 and QSLs total 7,442.

Bill John, from VK4, has collected quite a few QSL cards, but he has not wrote, he unfortunately the list of the cards that was enclosed in the letter has been mislaid. The VK4 Division of the I.A. want Bill to form a VK4 Club in Victoria. Group after group about starting a group from us at VK3.

Afton L213H/VK4 unfortunately is tied up with business interests and has not had time the time he would like to in listening. There has been no further break through from VK on 50 Mc. and strangely enough no sign of the JAs as yet, but Afton is monitoring the band for a while each night. Maybe they will be later this year.

Chas L221L has at last received confirmation of receiving the four ZL districts on 50 Mc., after trying for some time, also he received the Alverna Grove QSL card on 50 Mc. On 16th Feb. Chas decided to change back to some h.f. listening and heard a large number of DX stations on 14 Mc. phone. That Eddy-wood is certainly performing well. Chas has just completed his first two years as a s.w.I. and is more than pleased with the results during that period. He has received 50 Mc. VKs, 3, 4, 5, 6, 7, 14, 14 Mc. HK4BQ.

Peter L3001 reports that 20 mx has changed completely. It is now useless at night and all in the afternoon for Europe and the States. 40 mx is very good for Ws on s.s.b. at about 7000 kc. and also 17.4Z detour said QSO on about 7100 kc. on s.s.b. at the same time. It looks as though conditions are changing for the better during the period in February and no quieter and peaceful for the winter conditions.

Now a few words from Don L2022. He asks: How many of the listeners tuned in to the saga being played out on 20 mx sideband on March 18 at 630z, when KHEBMM/Aero Mobile was searching for a U.S. Navy seaplane which was forced down off the coast of Australia that day whilst searching for the crashed commercial airliner? The seaplane was forced down and the search was continued until it was extinguishing it, the craft was unable to take off. Bob KHEBMM located and shepherded the floating plane until relief came. The location was 15 degrees 10' S, 174.5 degrees E. Just another case of the Amateur providing an emergency service, for as well as the search, communication was maintained between Bob and KR6KS.

A local Amateur was looking at my log the other day and noticed some c.w. entries on 40 metres. The chap concerned was amazed, so much that I had heard the very weak DX, but that they had been found in the first place. OK so you want to know eh? It's simple, just listen for the steady swinging key of Frank VK2QL, wherever he is, the DX is close by. Talking of 80 mx, it has really been active this month, the States are coming in frequently, and there is plenty of DX about as well.

The DX front looks particularly good from Albany, last year was the best year L2022 ever had, with 165 countries logged for the year. This one looks better, 20 mx has been more consistent of late, whilst there has been a wealth of DX on 40, 80, 15 and 10 mx is open regularly to the States between 8 and 10 a.m. daily—that is if you are home to it. It is a good band, it is a good band and an asset during the contests.

On the DX side of things, we note such stations as TUDAZ, IABCT, TPZAR, VP2CAA, UH8BI, CK2XJ, VS90CD, U0SKAA, UQ2AS, URZAR, UP2AS, 6W8QJ, CY, CTINT, VP0VP showing up using various modes this month. It is great to find some really good DX about again.

Well chaps, that's all for this month. 73, and best of DX, Robert L3076.

### S.W.I. DX LADDER FOR APRIL

	Countries	Zns.	S.s.b.	W
	Conf.	Hrd.	Conf.	Hrd.
E. Treblecock	101	249	37	14
D. Grantley	101	249	37	14
A. Wescott	84	159	31	33
A. Hilliard	67	208	33	5
N. Fisher	64	159	31	33
C. Abernethy	32	71	22	13
P. Drew	31	176	18	7
P. John	28	145	18	7
N. Harrison	26	48	20	—
L. Thomas	17	121	16	6
L. Thomas	17	121	16	6
H. Burger	6	185	5	1
N. Fisher	3	36	3	—



### VHF NOTES

(Continued from Page 12)

#### PAPUA

March opened very quietly in VKs. No 50 Mc. breakthroughs were observed at all during the first three weeks. The first breakthrough to JA came on the evening of 20th, when weak DX was heard on 14.215-218 hrs. For the remainder of the month, it was heard or worked each evening, with the exception of 29th and 31st. Very few JAs were heard calling in England, which would indicate that no DX was being observed by them. On two occasions JAs were heard calling VK8AU, but no QSLs were received.

On 20th, a KR6 was heard amongst the JAs, but the full call sign could not be identified. Band openings have been from approx. 1930-2200 hrs. with a lot of Port noreads. No sign of any VK stations during the month and t.v. Channel 2 was only heard once, during the morning. T.v. picture channel around 80 Mc. has been heard twice (beam heading north) during JA openings.

BWV is back on 6 mx again after a few weeks' absence from the air. Newcomer to 6 mx is 9DS, of Port noreads. He has a converter in operation and a tx all set to go, so we expect to hear you soon, Bob. At the time of writing, 9DS was in the process of being heard, but should be back here by the time these notes appear. DX man from the lower bands, RALPH, has appeared at 8AU's shack on a couple of evenings recently to work the JAs on 6 mx; with a little coaxing he may even get around to emitting a signal on 6 mx. With the absence of 82BV there has been no activity on 2 this month. 8AU has recently added a cascade 6CW4 pre-amp. to his 6 mx converter and is engaged in a similar project at the moment. 8AU.





# FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

## FEDERAL

### OBITUARY

The W.I.A. offers Peter Dunne its sincere sympathy on the loss of his wife. Peter was originally a P.M.G. licence examiner at Melbourne but was transferred to Hobart. He is now at 10 Blaine St., Mt. Gravatt, Qld.

### NEW CALL SIGNS (DECEMBER)

VK— Australian Capital Territory  
1SQ—R. K. Roseblade, 83 Finnis Cres., Narrabundah.

1SQ—T. A. Brinkley, 9 Faunce Cres., O'Connor.  
1TM—T. R. Moore, 160 Eyre St., Grimsby.

1WP—P. V. Inglis, 28 Green St., Narrabundah.

New South Wales  
2DU—D. R. W. Fullerton, 50 Larmer St., Narrabundah.

2FC—F. Finlayson, 59 Newcastle Rd., Walsend.  
2HD—Mrs. H. M. Davies, 32 Langtry St., Auburn.

2IL—B. Dale, 19 Robinson St., West Wollongong.  
2TK—E. Thompson-Boyd, 2 Jill St., Blacktown.

2WG—W. J. Melville, 54 Travers St., Wagga.  
2AAY—H. C. Burton, 56 Edgely Rd., Wollajarra.

2ANO—J. A. Simensen, Lot 16, Koorabell Ave., West Wollongong.

2ZAW—D. G. Allen, "Lyndon," Fitzroy St., Walcha.

2ZCH—C. Henderson, 949 Blaxland Rd., East-wich Hill.

2ZIM—J. A. Mackenzie, 103 Denison Rd., Dulwich Hill.

2ZLE—L. E. Thorne, 25 Harefield Close, North Sydney.

2ZPL—P. F. Lowe, 16 Edgar St., Auburn.  
2ZRU—R. C. Usher, 24 Falcon St., Crows Nest.

2ZVW—W. J. MacNaughton, 50 Killestone St., East St. Ives.

2ZWC—P. W. Campbell, 3 Earle Ave., Ashfield.

### Victoria

3ADF—G. M. Nicholls, 14 Somerset Rd., Glen Iris.

### Queensland

4ZRF—F. J. Lubach, 21 Boveles St., Camp Hill.  
4ZRH—R. S. A. Hastie, 373 Cavendish Rd., Coorparoo.

4ZRJ—R. C. Harris, 6 Gurley St., Wavell Heights.

### South Australia

5BM—M. R. Winterson, 7 Elm Grove Rd., Salisbury North.

5BW—W. D. Verrall, 8 Pertwood Rd., Elizabeth North.

5YA—G. M. Glynas, Station: Section 451, Hundred of Telesio, S.A.; Postal: Private Bag, Pil Pirie.

5ZQM—R. R. Burford, 63 Belair Rd., Panchito Park.

5ZT—T. J. Barker, 41 Gertrude St., Glandore.  
5ZZA—J. C. Batty, 3 Gilbertson Rd., Seaciff.

4ZJR—P. J. Russell, 28 Richmond Rd., West-bourne Park.

### Western Australia

67S—A. G. L. Schofield, 87 Streatham St., Kenwick.

### Northern Territory

8AU—D. T. Tanner, Batchelor.  
8GI—G. K. Jenkins, Railway House 1001, Alice Springs.

will count one point and a multiplier of one for each Asian country on each band.

Scoring: The score of each single band is the country multiplier for that band, multiplied by the total contact points on that band. The total of all band scores is the sum of country multiplier on all bands, multiplied by the sum of contact points on all bands.

All logs must be postmarked not later than 30th September, 1962. Send all logs directly to J.A.R.L. Attn: Contest Committee, P.O. Box 377, Tokyo Central, Japan.

A supply of rules and log forms has been distributed to Divisional QSL Managers and a further supply is held at this Bureau and may be had on application with a.s.e.

Plans for a DX-pedition to Nueve Baja and Swan Island have been completed. One of the operators will be WADQS. The expedition reaches Nueve Baja on 27th April and will remain there for four days signing HKAT. They expect to reach Swan Island about 1st May and remain for two days signing KSABF. All bands and modes will be used.

—Ray Jones, VK3RI, Manager.

## NEW SOUTH WALES

### EXTRAORDINARY GENERAL MEETING

The first meeting to be held in the new headquarters building at 14 Atchison Street, Crows Nest, was an Extraordinary General Meeting held to consider the following Special Resolution:—

"That the Honourable Allen Fairhall, VK2KB, be elected an Honorary Life Member of this Division in recognition of his services to the Amateur Radio movement on the political field."

The President, Bill 2YB, opened the meeting at 7.58 p.m. to an attendance of approx. 100 members. He referred to the outstanding work done by Mr. Fairhall in this regard and which it will be recalled had the result that a representative of the Wireless Institute was appointed to the Delegation to Geneva, the late John Woyke, VK3JU, and later representative was appointed to the R.F.A.R.C., thus enabling the Amateur Service to present their case on Frequency Allocation.

The motion was supported by Frank 2QL, Dave 2EO, Graham 2AGH, Pierce 2APQ and Ken 1AIL. It was carried unanimously by the meeting.

### ANNUAL GENERAL MEETING

The Annual General Meeting, which followed, was opened by the President at 8.10 p.m. Apologies were received from 2FA, 2ABH, 2AUK. The minutes of the previous Annual General Meeting were read by the Minute Secretary (Max 2MP). The Returning Officer, Barry 2XW, was appointed and the members were selected to conduct the business of the ballot for the election of officers of the Division for the ensuing year.

The Treasurer's report and balance sheet was read by the Honorary Auditor, Jim 2FM, who disclosed that despite the great call on the funds of the Division during the year, it had been satisfactory. The meeting was presided over by Graham Hall, who praised the work of the Hon. Auditor and on his motion, Jim was appointed for yet a further year.

A notice of motion, moved by Jim 2YC, and seconded by ZAVI and 2ABO: "That as the Institute has its own Emergency and Transmitting H.Q. situated in Quarry Road, Dural, and its own business H.Q. situated at 14 Atchison Street, Crows Nest, so the Annual General Meeting should discuss the present and future activity and the position on importance in the affairs of the Institute regarding the headquarters."

Codified: The position and activities listed above should be discussed under three headings: (1) General H.Q., (2) Atchison Street H.Q. (3) Position of the N.S.W. Division of the Institute taking into consideration the points raised in headings (1) and (2) above.

The mover of the motion explained his motion and owing to the limited time available on a large agenda agreed that the motion be discussed at a general meeting during the next three months.

Following an adjournment between 8.55 and 9.15 p.m., during which the general meeting proceeded, the Returning Officer announced the result of the ballot. Members of Council elected for the year 1962-3: H. F. Burfoot, VK2AAH; K. Jekoff, VK2BK; T. L. Mills, VK2ZTM; M. Molesworth, VK2VO; A. D. Nutt, VK3DM; M. Pfeffer, VK2MP; K. Squires, VK2ZTD. Thanks to the Returning Officer and his scrutineers were moved and carried.

Jim 2FM moved a motion of thanks to the retiring Council and referred to the great amount of work done and the results achieved during the year. The Annual General Meeting closed at 9.35 p.m.

### GENERAL MEETING

At the general meeting minutes of the previous meeting were read by the Minute Secretary, Max 2MP. A notice of motion, "That all future meetings of the Division be held at Broadway, 14 Atchison Street, Crows Nest," was moved by 2CB and was carried unanimously. New members admitted to the Division numbered 11, six Full Members and five Associate Members.

The balance of the meeting consisted of the discussion of some 40 agenda items which will be discussed at the forthcoming Federal Convention to be held in Perth at the end of the year, at which the Federal Councillor, Pierce 2APQ, was briefed on the action desired by the Division. The general meeting closed at 12.10 a.m.

### COUNCIL 1962-3

The Council and officers of the N.S.W. Division for the coming year are as follows: President, Vol 2VO; Vice President, Max 2MP; Harold 2AAH; Councillors: Keith 2BK, Tim 2ZTM, Alan 2DN, Ken 2SD; General Secretary and Treasurer, Bill 2EG.

### DISPLAY—FAIRFIELD

On Monday 19/3/62 the N.S.W. Division presented a lecture and display of "Amateur Radio as a Hobby" to the members of the Fairfield Methodist Church. For nearly three hours the laudible audience of over 100 persons introduced to the various types of transmitters and receivers in the range.

Part of the activities was filmed by A.B.C. Channel 2 News team. The lectures were recorded and will be included in the Tape Service.

### COLLINS DISPLAY AT HEADQUARTERS

An interesting afternoon function was held on March 31 at headquarters when a demonstration of Collins Radio equipment was held, in conjunction with United Radio Distributors Ltd. A large audience, of over 130 people, attended and heard an informative lecture by Mr. White, of Collins Radio Company, who explained the functions of the various types of transmitters and receivers in the range.

Afternoon tea was provided by the ladies committee and many interested persons became members of the function. Reference to previous issues of "A.R." or your Bulletin will show the wide range of tapes on diverse subjects which are available to clubs and small groups on application.

These tapes could form the nucleus of your next meeting, as they are all of lectures which have been given before the Division. No

## FEDERAL QSL BUREAU

Any information on the station on 14 Mc. c.w. during March and April signing CR18AB would be appreciated by this Bureau.

Results of the 2nd Asian DX Contest, staged by the J.A.R.L., show that the winner was 4XAN, with 1600 GNT points. Australian scores were: VKs 5N0 4,800, 6GR 3,600, 2GW 2,482, 2WA 336, 2DI 215, 4ZB 180, 2APK 805, 5SD 554, 6RX 140, 16, 6SR 40.

The 5th Asian DX Contest will again be staged by the J.A.R.L. and is again restricted to c.w. only on bands 3.5 to 28 Mc. inclusive. The Contest period is from 1400 GMT, 20th August, to 1800 GMT, 25th August. The serial numbers exchanged will consist of five figures—RST report plus age of operator. (Apparently no provision is made for centenary operators!) YL operators may substitute 00 in lieu of age!

Points and multiplier: For non-Asian Stations—A contact only with an Asian station

## SILENT KEY

It is with deep regret that we record the passing of:—

VK5MD—E. A. ("Doc") Barbier



# \*AEGIS

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	J.8	No. 2. " "
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	J.12	No. 2. " "
455 " Kc.	J.22	Nos. 1, 2 & 3. High "select. Designed for communicational research use! Bandwidth: 3.6 Kc. at 6 db., 15 Kc. at 60 db.
"	J.23	
"	J.9	Nos. 1 & 2. Standard universal. Bandwidth: 7 Kc. at 6 db.
"	J.10	
"	J.32	Nos. 1 & 2. Midget universal. Bandwidth: 7 Kc. at 6 db.
"	J.33	
"	J.39	Recommended for use in cascaded half-lattice crystal filters. Nos. 1 & 2. Midget low-gain replacement type. Bandwidth: 10.5 Kc. at 6 db.
"	J.45	
1900 Kc.	J.26	Nos. 1 & 2. Universal. Recommended in double conversion superhets. No. 3. Recommended for use in a double conversion superhet.
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roll-up for several years, numberings approx. 30 including 3KZC, 3SS, 3KX, 3KZC (Melbourne), and 3XN, 3AKN (S.W. Zone), which we trust all have a safe journey home.

Pete 3ZDP was elected President. Other officers elected: Bert 3BB, Vice-President; Stan 3ZAB, Hon. Sec.; David 3DY, Emergency Co-ordinator; Cliff 3AT, official 3W call-back station, backed up by Graham 3QZ. Michael 3ZEO enlightened us very much so on Divisional matters, and the emergency work done in the recent Dandenong fires. Unfortunately, little zone activity took place over the preceding twelve months, except for several of our members participating in the X.F. and V.H.F. field days. However, this year we hope to change this, and we have arranged several family field days at suitable spots.

On the Sunday we had perfect weather, and had a conducted tour by John 3ZFO over the Gas and Fuel in the morning, then travelled out to a beautiful spot called Walker's Park, near Yinnar South, for a barbecue lunch and family gathering, where 71 turned up. The organisers really did a marvellous job, catering especially for the children and everybody enjoyed the fine cooking, treasure hunts, disposal hand outs, etc., and I sincerely feel that everybody will remember this Convention.

The next Convention is to be held at Warragul on April 6 and 7, 1963, or the nearest convenient week-end.

Our next family field day will be on May 6 at Alf McCrow's place near Woodside, between Yarram and Sale, starting time around 10 a.m. Please, all our members, try to attend and I feel quite sure they will enjoy the day immensely. See you there? 73, 3ZCCG.

#### NORTH EASTERN ZONE

Approx. 40 members, with families and friends, were at Benalla on 1st April to attend the first annual meeting held for several years. The business meeting was held at the Regal Theatre where 3UW was elected as President, 3KR as Vice-President, 3AUL as Sec./Treas., and 3ASY as Correspondent.

The Zone hook-up was discussed rather animatedly and we will continue to hold it

The name of Pee Wee Hunt is familiar to all followers of Amateur Distillation music, but few realise the fact that he can regularly be heard and contacted on the 7 Mc. band using single sideband transmission with the call sign of KIAYA.

on Fridays at 2000 hrs. on 80 mc; 3AUL was re-elected co-ordinator, with strict instructions regarding operating procedure in order to ensure that hook-ups do not take too much time in future.

A decision was made to award a prize next year for the best piece of mobile equipment brought to the Convention, however there must be an entirely active member to present units will be given a handicap.

Several representatives from Melbourne explained matters pertaining to Institute buildings and W.I.C.E.S. The latter evoked much interest and we were all set to go into business wicewise but were advised to await details of a uniform procedure to be shortly decided upon by the appropriate authorities.

After a picnic luncheon in the gardens, 3KR once again captained tours of inspection. The new drive-in theatre, Sydney-Melbourne co-ax repeater, and GMY6 were visited. The party broke off at 1700 hrs.

3AYD and 3ACK have been doing much c.w. work (mainly practice) of late; the former however reports juicy contacts with Italy, Alaska, Germany and U.S.A. 3AAQ did start up a month or so back but has apparently gone cold since then. He tells he is currently embarked upon a rx building scheme with converters, xtal lattice filters, heated dial sockets, etc. Next two or three years he is going to use R1155.

3JAWT making queries re clix filters, shaping networks, etc., and no doubt will be practicing using 3ASY VASFP CMT clamping his mobile units whilst 3APP is figuring on trying out klystrons for a change. 3ZKW was successful in the January test and is now awaiting a full call. Understand he is almost ready to speak to us except for a mod.

That's all for now; this correspondent would appreciate hearing tid-bits of news relating to N.E. Zone members, either direct or otherwise. In the meantime, I will monitor all transmissions with an entirely different attitude. Also, Mr. Editor, keep a stop press for next two months as 3AUL predicts a zone shattering event will come to pass. All omens and portents indicate strange goings on.

#### WESTERN ZONE

Bert 3EF, of Warracknabeal, is one of our most active members. His rig consists of a Geloze rx, Geloze v.k.o. driving a single 807 with a pair of 6L6Gs as modulators. Antenna is a GSRV, which seems to work extra well on the 3.5, 7, 14 and 21 Mc. bands. Bert works

consistently into Europe, States, Pacific Islands, and has contacted a VK on the 3.5 Mc. band.

Herb 3NN, of Yinnac, and Trey. 3ATR are also contacting their share of DX as well as being on the v.h.f. bands. Merv. 3AFO, of Horsham, and Vic 3ABQ, of Marico, are furthering their studies in doing a night school course at the Horsham Technical School. The Birchop boys, 3AYD and Ray 3ATN, while still working some DX, are on the v.h. frequencies these days. 73, 3AKW.

## QUEENSLAND

Thirty-five members attended the March Divisional meeting at which two sound films were shown by the courtesy of QCI 4C1. Some of the night went to a talk by Vines 9VJ on the transistORIZED a.d.o. published in "QTC" and much appreciated by all. It's a pity more members can't make the effort to offer their little hints and kinks.

Those who have been on the air on Sundays in the 4W1 hook-up have noticed the use of a number of words passing the call directly from one to the other in the 4W1 hook-up. Have you found this satisfactory? Others are waiting to hear what you have to say. Talking in the hook-up, and in the 4W1, is a very giving monthly conditions predictions for the Amateur bands out of Brisbane.

Again of 4W1, station manager Stan 4SA has been advised to take things easily for a while so is only rarely on the air. Observe that it's hard to believe, we hear he's a good listener too! In the meantime, assistant manager Alf 4CL is doing the good work. Les 4EH is another on the not-so-well list, he himself deciding when doctors disagreed.

Here is a note for branches and clubs who may not have heard, or a reminder to those who have: send your regular reports to your kindly sender to Box 633 your regular and special meeting dates, places, and times? This is for regular publication and distribution to let other members know who is where and what is when as well as a reminder to your own group.

This last month has also been the Urunga Convention, and at the time of writing, George 4G3 and Bill 4G4 are indeed making the trip. Bill 4WS was busily trying to complete the mobile gear he has been playing around with for ages. Our admiration goes to the boys down for the northern rivers way for the speed with which they had a W.I.C.E.N. operating on the week-end of April 7 and 8 when floodwaters were only starting to rise. Some very fine signals were heard in Brisbane. Very quickly the word spread the net was operating and the frequencies cleared.

#### POISONAL PARS

Talking of floods, we in VK4 have heard about the drought in VK3 so Pan5Y called on his fellow members to weep for his deep gratitude for being granted honorary life membership of the Division. Patsis must be dropping out of the net, and the stray fine signals the thumb by his XYL and told not to play with the rough boys up this way. Tut, tut.

## Wireless Institute of Australia

### Victorian Division

## A.O.C.P. CLASS

commences

THURSDAY, 2nd AUG., 1962

Theory is held on Monday evenings, and Morse and Regulations on Thursday evenings from 8 to 10 p.m.

Persons desirous of being enrolled should communicate with—Secretary W.I.A., Victorian Division, P.O. Box 36, East Melbourne (Phone: 41-3535) 10 a.m. to 3 p.m., or the Class Manager on either of the above evenings.

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**ADCOLA SOLDERING IRONS.** Miniature, 240v. operation. Model 70, 1/8" bit, 56/9 each, S.T.E.; Model 64, 3/16" bit, 59/6 each, S.T.E.; Model 107, 1/4" bit, 63/6 each, S.T.E. No. 68 Protective Shield, holds iron when not in use, 15/9 plus tax 12½%. No. 700 Shield, as above, but with wiper pad and solder reel, 30/- each plus tax 12½%.

**MAGNAVOX SPEAKERS.** New models, 2V, 2" diam., 12 ohm voice coil, 23/6 each plus tax 25%; 4T, 4 1/2" diam., 15 ohm voice coil, 23/11 each plus tax 25%; 64S2, 6 1/2" x 4-3/16", 15 ohm voice coil, 27/- each plus tax 25%.

**DECCA MICROLIFT.** Automatic Pick-up Lowering Device, 47/7 each plus tax 25%.

**DISPLAY TURNTABLES.** 8" model, load 112 lbs., £12 each plus tax 12½%; 12" model, load 175 lbs., £16/13/9 each plus tax 12½%; 12" model with power point, £19/13/9 each plus tax 12½%.

**PHILIPS CRACKED CARBON RESISTORS.** 1/4 watt, 1/1 each plus tax 25%; 1/2 watt, 8/- doz. plus tax 25%; 1 watt, 10/- doz. plus tax 25%; 1 1/2 watt, 1/1 each plus tax 25%. All preferred values available.

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## KEW TRANSISTOR CHECKER Type TRC-101, battery operated.

**Measures:**  
Collector cut-off current Ico 0-50  $\mu$ A.  
Voltage Gain A 0.8 to 0.995.  
Current Gain B 0 to 200.  
Diode Quality Check—Good ? Bad.  
Rectifier EP-IP (character):  
EP = 0-5 V.  
IP = 0-500  $\mu$ A.  
**Meter Sensitivity:** 50  $\mu$ A., full scale.  
**Scale Calibration:** B, A, Ico Good ? Bad.  
**Size:** 7" x 4 1/2" x 3 1/2".  
**Price:** 10 Gns. plus tax 12½%.

Supplied complete with Instruction Book and Test Leads.

## KEW MULTIMETER, Type TK70B

**Sensitivity:** D.C. 20,000 ohms/volt.  
A.C. 5,000 ohms/volt.  
**Volts:** A.C./D.C. 0-10, 0-50, 0-250, 0-500, and 0-1,000.  
**Milliamps:** D.C. 0-500  $\mu$ A., 0-10 mA, and 0-250 mA.  
**Resistance:** 0-20K ohms, 0-200K ohms, and 0-2 megohms.  
**D.B.:** (Up to 6,000 cycles) to 22 db.  
**Capacitance:** 0.001 to 0.2  $\mu$ F.  
**Size:** 5 1/2" x 3 1/2" x 1 1/2".

**Price:** £7/12/0 plus tax 12½%  
Supplied complete with Instruction Sheet and Test Leads.

**STICK-ON NAME PLATES.** Any word or number made to order. Immediate delivery. 9d. each per five symbols, plus tax 12½%.

**NEW TYPE BANANA PLUGS—SUP-RAFIX.** fits standard sockets. Type 2004A straight, 7/9 doz. plus tax 25%; Type 2004K straight w/spade connection, 7/9 doz. plus tax 25%; Type 2014B right angle type, 9/3 doz. plus tax 25%. Quick release spring grip to lead wire.

**TELEAID.** For hard-of-hearing T.V. Viewers. Enables crystal earpiece to be used for T.V. or Radio Set. £5/5/0 each, S.T.E.

**NEON LAMPS.** Miniature, wire lead connection. Strikes at 140 volts D.C. 330K ohm series resistor required for 230v. A.C. operation. 2/2 each plus tax 12½%.

**MICROPHONE CONNECTORS.** Suit Philips, Grundig Tape Recorders.  
3-pin panel socket 2/2 ea. plus tax 12½%  
3-pin line socket 4/2 ea. plus tax 12½%  
3-pin line plug 4/2 ea. plus tax 12½%  
5-pin panel socket 2/4 ea. plus tax 12½%  
5-pin line socket 4/3 ea. plus tax 12½%  
5-pin line plug 4/4 ea. plus tax 12½%

## ★ BARGAINS ★

**ENGLISH TRANSISTORISED SIGNAL GENERATORS,** pocket sized. Usually £16 each plus tax. Five only to clear at £12 each plus tax 12½%.

**Transistorised R.C. Bridges.** Usually £15 each plus tax. Five only to clear at £11 each plus tax 12½%.

**KEW STEREO INDICATORS.** Attractive case and dial. Suitable to stand on top of cabinets. Usually £5/6/8 each plus tax. Few only to clear at 75/- each plus tax 12½%.

**CHASSIS PUNCH SETS.** Hammer type, 8", 7", 1-3/16", 59/6 set. Sales tax exempt.

**A. & R. OUTPUT TRANSFORMERS.** Type OT2511, 8,000 ohm Ultra Linear to 2 ohm voice coil, 6 watts, 20/- each plus tax 25%. Also has a 12.5 ohm feed back winding.

**WESTINGHOUSE 1 mA. METER RECTIFIER.** Usually 36/3 each plus tax. Special price, 25/- each plus tax 12½%.

**COLLARO CRYSTAL MICROPHONES.** 25/- each plus tax 12½%.

**BATTERY CHARGER VALVES.** Type 1163, 6 amp. 90 volts. screw base, equivalent R49, etc. 35/6 plus tax 12½%

**TURNOVER CRYSTAL PICK-UP CARTRIDGES.** Supplied complete with two sapphire styli and mounting bracket. High output. 20/- plus tax 25%.

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### VERTICAL CHANNEL:

Sensitivity: 0.025 volt (r.m.s.) per inch at 1 kc.  
Freq. response: Flat within plus or minus 1 db. from 0 c.p.s. to 2.5 Mc. Flat plus 1.5 to minus 5 db. from 3 c.p.s. to 5 Mc. Response at 3.58 Mc., minus 2.2 db. (All response measurements referred to 1 kc.)  
Rise Time: 0.68 microseconds or less.  
Overshoot: 10 per cent. or less.

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Sensitivity: 0.3 volt (r.m.s.) per inch at 1 kc.  
Freq. response: Flat within plus or minus 1 db. 1 c.p.s. to 200 kc. Flat within plus or minus 3 db. 1 c.p.s. to 400 kc.  
Attenuator: Low imped. type in cathode follower output.  
Input characteristics: Selector switch permits use of external input through panel terminal, line-freq. sweep of variable phase or internal sweep from sweep generator.  
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I notice, with astonishment (I was going to say consternation, but I can't spell consternation), that Basil 4ZW from that slightly known hamlet of Cairns rudely suggests that I am not capable of running down to the post office and renewing my licence. Proudly drawing myself up to my full four foot two inches, I retort that as I always pay my licence on the due date, there is no need for me to run. My conscience permits me to stroll sedately down to the P.O., sorry, Receiver of Public Monies.

Bert 5BB heard on the 5WI call-back with a signal that had to be heard to be believed. Nothing less than a kw. could compare with it. Bert.

LES SAX heard on the call-back proudly telling all and sundry that this was his first time he had contacted SWF for 1962. Unusually for him, he was not at all high on the list. My, my. Comp. 5EW also had heard, and to again prove that I can read his a.s.b., he was having a dig at the predictions given in the 1962 book. I told him that I had told him needle you John, to 5EW inputs predictions don't mean a thing. Ho, ho. Tom SAXQ still relaying the SWI session to the N.T. and the N.T. to the SWI. I told him that I was sure that he had not heard from anybody as to whether or not it was serving the purpose for which it was designed. Going on my own, I was sure that I had heard the best thing until the day that you miss out, and then you will hear plenty. Keep up the good

Bill 5XB heard with his usual f.b. signal from Kingston. This station is another one who either comes in at unbelievable strength or can't be heard for the noise. Weekly 5DF report on the SWI call-back, but had little to report. Apparently still in the little town of Crowfoot from the location, but without a doubt he sure puts in a consistent signal into the City of Churches. Pete 5FM noticed at the general meeting, and seemed to be enjoying himself. Has been heard on 7 Mc. consistently these days and as Master of Ceremonies of the famous, and at times infamous, "Lunch-dinner" can be tactfully heard calling the wanderers off frequency in the network back to the fold.

LOW NOISE XTAL CONVS. 144 Mc.  
Repairs to and construction of Receiv-  
ers, Transmitters and Test Equipment.  
T.V. alignment.

Amateur Radio, May, 1962

Bob SBG, Dave SDS, Les 5NJ and Luke 5LL heard conducting a marathon QSO on 3.5 Mc devoted to the past history of paddle steamer on the River Murray. A considerable degree of authenticity was behind the discussion as Bob's father was a one-time fireman on a paddle steamer, an uncle of Les was an old river captain, and Luke's maternal grandfather was also a river boat captain. Bob was heard next day complaining about a sore back, probably from towing so many river boats up the Murray the night before. Oh dear, oh dear, how

Talking of George SGD, reminds me that his son is the secretary of the University Amateur Radio Club. The University takes his full time in the summer months and he looks like a good prospect for a call sign of his own. Talking of the University Amateur Radio Club SUA also reminds me that these days the University has a new forward during the University Orientation Week. They set up their Amateur Station in full view of the passing students and contacted the world in the greatest ease, as a matter of fact they can contact anywhere, where according to them was an event on its own. Is that so? Anybody would think I was never on the air.

Although I must admit to having some doubts as to the final outcome of my lecture, especially when in reply to my question as to how long I would be required to talk, the Project Officer (Ian SIK) replied, "Don't worry, when the tomatoes and eggs start to fly, then you will know your time is up!" However all was well, and as I left the George Murray Lounge by the window, with the cheers and acclamations of the crazed members ringing in my ears, I could not help but feel that I had at last left my mark on the University.

I have commented in these notes many times before that the name of the hardest job included in the duties of a Divisional Sub-editor was the writing of the obituary of the members who have passed on. Writing "Doe's" (SMD) obituary this month was extremely difficult in view of our personal relationship and also in view of the very small space available. A large gathering of members attended the funeral and the floral tributes were an outstanding indication of his position in the public eye. To those members who were close to him and mourn his passing, I may say that his name will live on in the pages of the Division and Amateur Radio for 1977.

the news that next month's notes will be written, I think, by that dozen of the s.a.s. that Beau Brummel of the Backbocks, the wielder of the vitriolic pen, none other than Comps SEP from the hamlet of Gawler. I shall be on my well-earned vacation, sitting either and thither around the countryside, awaiting with some trepidation to read just what the pangs of jealousy will cause the writer Backdagger to write. Remember, dear and gentle reader, stick to the stone, not my bones, etc., etc., etc., and a couple of tut, tuts. 73 de SPS (Pansy to you).

The Annual General Meeting and Annual Dinner are again in the past. We were delighted to welcome the following to both functions: Den 7DK, Bob 7ZAH, Syd 7SF, Max 7CA, Ken 7KH, together with their respective lady companions. These visitors from the north and north-west helped to swell the dinner attendance into a most convivial and enjoyable function. Our gratitude is due to Snowy 7CH and Len 7LE for arranging the details of the dinner, together with several media of enjoy-

Pat TGV should soon have a modulator and v.f.o. operating, so some phone QRM should soon occur from Tarooma direction. Cros 7CW and Bob 1AF, after long silences, have both been heard on the bands again, and we active licensees hope that this is only a forerunner of increasing activity from both stations. Bertie and Mrs. Clarke have been located at Cragg during the last two weeks of March, hence the call sign 3LU portable VK7 heard regularly on 7 megs. during that time.

I have again noted frequent examples of phone stations operating in the c.w. section of the various bands. Although the gentlemen's agreement is not binding on operators, yet for orderly operation, observance of this agreement can only increase our enjoyment of our hobby. How about it chaps? 73, 72Z.

The annual meeting of the Northern Zone was held at the home of the retiring President, Mr. Carl Waldon on 9th March, and it is with pleasure that we are able to report that during the year the Zone showed a steady but definite increase in strength, interest and membership.

Officers elected for the following twelve months are John 7JF, President; Col 7LZ, Vice-President; Den 7DK (ex-5DK), Secretary; Max 7CA, Librarian.

Meetings of the Northern Zone are conducted in different members' homes each month, supper being provided by each member bringing a small offering. This results in a comfortable and pleasant meeting in pleasant surroundings. Unfortunately there are Amateurs in the Zone, some inactive, who do not attend the meetings. To these Amateurs a hearty invitation is extended. Make an effort and come along some time.

Meetings are held the second Friday of each month and a phone call will immediately bring you up-to-date information as to our next meeting place.

The aim of the incoming office-bearers is to make 1962 a bumper year for this Zone and an all-out effort by everyone will help them to achieve their goal.

#### NORTH WEST ZONE

Another month of GRM gone past and there is again little to report. The monthly zone meeting was held first Tuesday in the month as usual. We were pleased to welcome Peter IPA from the Southern Zone and some back-in-the-corner yards took place. Leon 7IP reported that he has completed and installed another mobile unit for the Burnie Fire Brigade. Nice work Leon and was rated for your efforts. We also took the opportunity to say farewell to Harold 7MZ who is migrating to the Southern Zone. We wish Harold all success in his new QTH.

At long last it has happened. George 7XL has come up on duck talk. And putting out a very nice signal if I am any judge of s.s.b. Even at this QTH at close distance there is no bandspread or splatter which cannot be said of all s.s.b. sigs.

Had the pleasure of a visit from those well known Kilmore identities Bert and Peg 3KU on their way to and from the south of VK7. Both appeared to be "Applied up" but in good form.

Apparently the monster, and I refer to the one-eyed entity who does a great deal to sponsor absenteeism from Ham activities. We notice that most of the empty seats at meetings are made up by missing monster addicts. How about a night or two occasionally chaps? If you read this before 1st May boys, bring along a few colour slides for the next meeting. 7MX.

## HAMADS

#### Minimum 5/-, for thirty words.

#### Extra words, 2d. each.

Advertisements under this heading will only be accepted from Institute Members who desire to dispose of equipment which is their own personal property. Copy must be received at P.O. Box 36, East Melbourne, C.E. Vic. by 8th of the month, and remittance should accompany the advertisement. Call signs are not permitted in Hamads. Dealers' advertisements not accepted in this column.

**FOR SALE:** A.m. and c.w. xmtr., band-switched 80 through 10, up to 50 watts input, Gelofo v.f.o. with in-built reg. p.s., 807 p.a. pi coupler output, commercial cabinet, meters in p.a. plate and grid, £30. Separate mod. in own cabinet, pr. 807s AB1, plate meter, £17. Will sell complete or separate. Collins 50 watt mod. transformer, pr. 15,000, sec. 7,300, excellent order, £6. W. M. Crawford, Box 142, Kingston, South Aust. VK5XB.

**FOR SALE:** Collins 75A2 Rx and Spkr. mint condition, £175. Tx, 150w, 80-10 mc, 813 final, mod. 830Bs Class B, in-built separate power supplies for final, exciter, mod., relay supply etc., in steel cabinet on rubber casters, £75. Tx, 100w, 2-6 mc, final QJQ60/40 and 807s, steel cabinet on rubber casters, £25. Rx, 2 mx suit above, £7/10/0. Genemotor, Ballantine, U.S.A., mounted on filter, new condition, 6v or 12v input, 500w, 160 mA o/p., £10. Kingsley S9er and coil boxes, £4/10/0. Kingsley n.b. f.m. adaptor, £1. Kingsley 6 mx Converter, £4/10/0. Genemotor and filter, 12v. input, suit 522, £3. Taylor Valve Tester and Multimeter, Model 47A, as new, £25. University Super Tester, £10. C.R.o. power supply, 190v., £5. A.W.A. Pyrox Tape Recorder, £35. VK3NZ, R. Hall, 17 College Grove, Black Rock, Vic. Phone 98-5763.

**FOR SALE:** Converter and Q5er 20 metres, converter consists of A.R.R.L. circuit using 6BX6s with full bandspread and vernier dial, feeds into BC-433G Radio Compass Receiver with built-in a.c. supply, £14. Command

Receivers, 3-6 Mc. and 6-9.1 Mc., in excellent working condition, £5 each. Type C Wavemeter, 1.470 to 10.260 Mc., £5. Signal Strength Meter and Monitor 20 metres, £2/10/0. Antenna matching unit 20 and 40 metres, commercial finish, £2/10/0. VK3AES, Phone 28-1264.

**FOR SALE:** Ferguson Transformers, new: three Vibrator Trans. VT108 6/300v. 75 mA., 35/- ea. Two Chokes, CF108 12H/100 mA., 20/- ea. One Driver Trans. 5w, MT106 5,000/1,250 mA. p.p., 35/- One Power Trans. 6/240 pri., sec. 300v. 125 mA., PF119, 45/- One A & R Driver Trans. Type 545, 10w. 4,000/AB2 p.p., new, 50/- One Q & Transistor P/S 12v., 300v. 100 mA., PS-30/12, as new, £7½ One Pye VTRM/6 6v. dual P/S, 250v. 100 mA., £3½ One 9v. I.F.F. Gene. £1. One 18v. I.F.F. Gene. £1. Three Q-4 85 kc. i.f. Transformers, 30/- set, new. D. V. Scott, VK3DY, 174 Johnson St., Maffra, Vic.

**FOR SALE:** One AR7, excellent condition; one 22 ft. self-supporting tower with extension to 30 or 35 ft.; two 26 ft. masts; one 50 Mc. converter; one 144 converter; want offers within reason. J. N. Bradshaw, 31 Summerhill Road, E. Reservoir, Vic.

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**SELL:** Excellent A.W.A. C.R.O., £27. R.A.A.F. 22 range VOM, £4. Rola G12 Speaker and trans., £5. New Mullard LSD3 Flash Tube, £7. Require: MN26C Radio Compass and/or Accessories, good price paid. M. J. O'Brien, Edgar Ave., San Remo, Vic. Phone 107.

**SELL:** Hallicrafters Receiver SX28, 0.55 to 43 Mc., 6 bands, bandspread Ham bands, variable selectivity, 100 Kc. marker xtal, matching speaker, instruction book, perfect condition and alignment, £75. Panoramic Radio Corporation, Panoramic Adaptor Type 2000, 240v. a.c., attached to above, scans 0-100 Kc., perfect condition, spare tubes, instruction book, £45. Q5er BC453, also attached to receiver if required, £8½. Receiver AR7, 140 Kc. to 25 Mc., perfect condition and alignment, with power supply and noise limiter, in-built 100 Kc. marker crystal, £30. Panoramic Adaptor, as above, attachable to AR7, perfect condition, £45. Receiver BC348-L, six switched bands to 18 Mc., in-built power supply and noise limiter, £27½. Hallicrafters Receiver S-27D, 2.8 Mc.-145 Mc. in three switched bands, f.m./a.m. noise limiter, variable selectivity, in-built 5 Mc. marker crystal, instruction book, 240v. a.c., £35. Marconi Receiver B40, 0.6 to 30.5 Mc., five bands, turret tuned, 240v. a.c., £25. Receiver AR17, modified, 130 to 180

Mc., a.m./f.m., in-built 240v. power supply, 18 valves, £20. Harmonic Generator, A.W.A. 240v., 1 Mc., 100 Kc. and 10 Kc. markers to 30 Mc., £10. R.M.E. Preamplifier, three 6J6s, 40 db. gain, bandswitched all Ham bands, gives great lift, 110v. a.c., instruction manual, £15. R.M.E. Mobile Converter, band-switched and bandspread all bands, in-built noise limiter, 6 or 12v., output 1600 Kc. to car receiver, £20. Transmitter AT14, 2 to 21 Mc., bandswitched, v.f.o. or crystal, totally enclosed, 21 tubes, 8 meters, input 240v. a.c., converted to plate modulation, perfect high power signal, instruction book, £75. Transmitter AT21, 1.5 to 16 Mc., v.f.o. or crystal, 240v. a.c. power supply, input 120 watts to pair 807s, in-built plate modulators, £25. Petrol generator, 2½ kva., output 12v. d.c. and 240v. a.c., £30. A.W.A. 50 Kc. Filter Q50084, 7 tubes, £12. Trimax modulation transformer TA908B, 150w. audio, multi-match, new, £7½. Bendix Frequency Meter, LM10, complete less book, £20. Receiver BC348-R, original, £17½. AT21 power supply, complete, £10. A.W.A. S3Z Receiver, 12v. d.c. 200 Kc. to 30 Mc., £12. S3Z Transmitter, £4. 3" CRO £12. 3" CRO £9. 2" CRO £8, TS-34 £10. Many other items and parts: Marconi Signal Generator 10-300 Mc., Philips Capacitor Meter, Valve Tester, Crystal Calibrators, Triplet Signal Generator, 100 Kc. to 120 Mc., Mobile Transceiver AT2B 12v. dc./240v. a.c., Meters, Receiving Valves, Transmitting Valves, Transceiver 122 perfect, various Transformers, Chokes, A.W.A. Valve Voltmeter, Automatic Call Sign Sender, Variac 8.5 amp. 200-260v., Command Receiver 190 Kc., 1.5 Mc., 30 Mc., 60 Mc., 9.1 Mc. etc. Command Transmitters, Weston 20,000 o.p.v. Circuit Tester, 522s, Selenium Rectifiers, Selsen Motors 240v. and 50v. a.c., Receiver R89ARN5, 1½" Dural Tube for three element 20 metre Beam, Vibrator Supply 12v. d.c. input 240v. d.c. out, Field Strength Meter 1-95A 100-155 Mc. etc. Dr. Alec Dan, 10 Kulgoa Road, Bellevue Hill, Sydney, N.S.W. FM 1055.

**SELL:** Radio Amateur Call Books, Foreign section Spring-Summer 1961, 15/-; U.S.A. section Spring 1961, 10/- VK-3AWS, 11a Maud St., Ormond, Vic. Phone 58-2149.

**SELL:** Swap: A.S.T. Supertracer, C.R.O., Mod., Pwr. Supplies, Valves, Parts of all Types, V.h.f. Gear, Panadaptor 450-470 Kc. I.f. No dealers. 97 Birkett St., Bedford, W.A.

**WANTED:** Bug, any condition. Don't think your old one is too wrecked for me to repair. Tony Brinkley, VK1SG, 9 Faunce Cres., O'Connor, Canberra.

**WANTED:** Steel self-winch tower, also triband beam and vertical 80 to 10 mx, commercially built. VK3AVU, 200 Elgar Rd., Box Hill South, Vic. Phone 28-2785.

**WANTED TO BUY:** 122 or 22 (Aust.) Transceiver in good condition. Harry Michael, VK3ASI, 6 Lindon Street, East Geelong, Vic. Phone 9-3318.

**WANTED:** TV in exchange for AR7 receiver, good order with xtal but less power supply, 122 Transceiver almost new condition, and BC453 Q5er as new. Write VK2ACB, Sutton 2S, N.S.W.

# CRYSTALS ALL THESE FREQUENCIES £2 EACH

3.5 Mc. Ham Band:	50 Mc. Ham Band:	144 Mc. Ham Band:
DC 3515 FT 3555	DC 8333.3 = 50 Mc.	DC 8016 DC 8022.5 DC 8029.5
FT 3535 DC 3560	DC 8383.3 = 50.3 Mc.	DC 8016.5 DC 8023 DC 8030
FT 3536 DC 3562	DC 8400 = 50.4 Mc.	DC 8017 DC 8023.5 DC 8030.5
DC 3537 FT 3564	DC 8416 = 50.5 Mc.	DC 8017.5 DC 8024 DC 8031
FT 3534 FT 3573	DC 8430 = 50.7 Mc.	DC 8018 DC 8024.5 DC 8031.5
DC 3547 FT 3575	DC 8483 = 50.9 Mc.	DC 8018.5 DC 8025 DC 8032
FT 3549 FT 3580	DC 8500 = 51 Mc.	DC 8019 DC 8025.5 DC 8032.5
FT 3552 FT 3587		DC 8019.5 DC 8026 DC 8033
DC 3552 FT 3595		DC 8020 DC 8026.5 DC 8033.5
	144 Mc. Ham Band:	DC 8020.5 DC 8027 DC 8034
	DC 8000 DC 8014	DC 8021 DC 8027.5 DC 8034.5
7 Mc. Ham Band:	DC 8010 DC 8014.5	DC 8021.5 DC 8028 DC 8035
Crystals of any	DC 8013 DC 8015	DC 8022 DC 8028.5 DC 8035.5
frequency, £2.	DC 8013.5 DC 8015.5	DC 8029

## CONDENSERS

### Superseal Paper Type:

0.0047 µF. 400v.	0.0033 µF. 600v.
	0.001 µF. 1000v.
ALL 6d. EACH	

### Metalpak Electrolytic Type:

25 µF. 25v.d.c.w.	2 µF. 150v.d.c.w.
2 µF. 200v.d.c.w.	2 µF. 250v.d.c.w.
and others.	
ALL 6d. EACH	

### Electrolytic Chassis Mounting:

24 µF. 350 peak volts	2/- each
32 µF. 200 volts working	2/- each
25 µF. 40 peak volts	2/- each

### Mica Condensers:

15 pF.	68 pF.	270 pF.
20 pF.	70 pF.	300 pF.
25 pF.	100 pF.	500 pF.
47 pF.	220 pF.	750 pF.
50 pF.	250 pF.	1000 pF.

### ALL 9d. EACH

### Metalpak Pig-Tail:

0.022 µF. Sprague	1/- each
0.0022 µF. Sprague	1/- each

## VALVE SOCKETS

Ceramic 4-pin Valve Sockets,	2/- each
" 5-pin "	2/- each
" 6-pin "	2/- each
" 7-pin "	2/- each
7-pin Miniature Valve Sockets and Shields. New 15 for £1.	
9-pin Valve Sockets, McMurdo, 9d. ea.	
Octal Valve Sockets	1/6 each

## CO-AXIAL CABLE

100 ohm co-ax. cable, 3/8" diam.,	2/- yd.
98 ohm co-ax. cable, 3/8" diam., in 100 yard rolls	£5, or 1/3 yard.
Twinex co-ax. cable, 75 ohm	2/- yard
72 ohm, 3/16" diam.,	2/- yard, or 100 yard roll
50 ohm co-ax. cable, 1/2" diam.,	2/- yard
or in 100 yd. rolls	£8/15/0.

We have stocks of the latest—  
LOG BOOKS 5/6

## COMMAND RX COIL BOXES

190 Kc. to 550 Kc., new, 5/- each

## COMMAND P.A. COILS

For 3-4 Mc. Tx. (Serial No. 7247).  
Price 7/6 each

## COMMAND INDUCTORS

Single layer coil (Serial No. 6035).  
For 5.3-7 Mc. and 7-9.1 Mc. Tx.  
Price 7/6 each.

## SAKURA CIRCUIT TESTER

### Model TR-6S

Sensitivity: d.c. 20,000 ohms/volt, a.c. 10,000 ohms/volt. Ranges—d.c. volts: 5, 30, 120, 600, 1,200v.; a.c. volts: 6, 30, 120, 600, 1,200v. D.c. current: 60 µA., 6 mA., 60 mA., 600 mA. Resistance: 10K, 100K, 1M, 10M ohms. Capacitance: 0.001-0.2 µF., 0.0001-0.01 µF. Inductance: 30,300H. Decibels: -20 to +17 db. (0 db.—0.775v.—600 ohms). Dimensions: 4 1/2" x 6 1/2" x 2 1/2". Weight: 1.3 lbs.  
Price £9/10/0 inc. tax.

## FERROCARAT VACUUM TUBE VOLTMETER

V.T.V.M.	£19/17/6 inc. tax
H.V. Probe	£3/5/0 inc. tax
R.F. Probe	£2/10/0 inc. tax

## ECKO NO. 88 TRANSCEIVER

Portable, xtal locked 4 channel, 40 to 43 Mc. 14 valves, 1L4, 1T4, 3A4, etc. 12v. 3a. input power supply. Less crystals, mike and headphones, etc.  
To Clear, £6/10/0 each

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TMK "Syncretape" 7" Rolls, PL-12 (Standard)	£1/16/6
TMK "Syncretape" 7" Rolls AC-18 (Long Play)	£2/10/6

## V.H.F. RECEIVERS

Type R89/ARN-5A. 300 Mc. Valves: seven 6AJ3s, two 12SN7s, one 12SR7, one 28D7, six relays, and three crystals of 6522.9 Kc. As new. £5 each.

## MULTIMETER Model 200H

20,000 ohms per v. d.c. 10,000 ohms per v. a.c.



Specifications:  
D.c. volts: 0-5, 25, 50, 250, 500, 2,500.  
A.c. volts: 0-10, 50, 100, 500, 1,000.  
D.c. current: 0-50 µA.; 25, 250 mA.  
Resistance: 0-60K ohms; 0-6 meg.  
Capacity: 0.01-0.3 µF. (at a.c. 5v.); 0.0001-0.01 µF. (at a.c. 250v.).  
Decibel: minus 20 db. plus 22 db.  
Output range: 0-10, 50, 100, 500, and 1,000.  
Battery used: UM3 1.5v. 1 piece.  
Dimensions: 3 1/4 x 4 1/2 x 1-1/8 in.

Complete with internal battery, testing leads and prods.

Price £5/17/6 inc. tax.

## 1155 GENEMOTORS TYPE 34A

Input 9.3v., output 225v. at 110 mA. Complete with relays and filters, in case. Weight 30 lbs. 19/6 each.  
5/- handling charge.

## SPECIALS!!

Pye double bulkhead mounting Chassis:  
Co-ax Connectors ..... 2/6  
Pye Co-ax Connectors ..... 4/- pair  
English Co-ax Connectors, plug and socket, suit 3/4" cable, 4/- pair. Right angles 4/- each.

Crystal Sockets, DC11 ..... 2/6  
Crystal Sockets, FT243 & miniature 2/9  
Jack Boxes, SCR522 type, contains 10K pot and knob. Size 3 1/2 x 1 1/2 x 2, 3/6  
AR8 Cables, 10 ft. long, 8-pin plugs attached ..... 10/-  
High or Low Imp. Headphones, 12/6 pr.  
Morse Key and Buzzer Sets, new, 12/6  
SCR522 28v. Genemotor power supply, 20/-, 5/- packing fee.

English Filter Chokes, 40 mA., 100 ohm resistance ..... 3/6 each  
"Scope" Soldering Iron, to clear, 45/-, complete with transformer, £4/10/0.  
Carbon Microphones ..... 12/6 each  
Carbon Mike Transmitters, small, new, 5/- each  
Vibrators, Oak/M.S.P. 6v. synchronous 7-pin AV5211R ..... £1 each  
Octal Plug and Socket, American Ampenol, in metal screw case, 8/6 set

## 8 Mc. MINIATURE CRYSTALS

Band-edge market Miniature Crystal and socket, £2.

## TANK WHIP AERIALS

15 feet long. Four sections: 35/- to clear. Personal shoppers only.

## SPEAKER PLUGS

Small bakelite 4-pin and socket, 1/9 pair.

# HAM RADIO SUPPLIES

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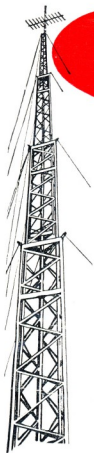
Money Orders and Postal Notes payable Nth. Hawthorn P.O. 5/- Packing Charge

# ANTIFERENCE

## 'WINCHMATIC' TELESCOPIC AND PORTA-TELESCOPIC TOWERS

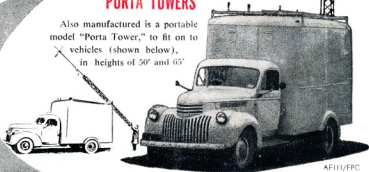
### 'WINCHMATIC' TELESCOPIC TOWERS

Another Antiference product — triangular sectioned telescopic guyed towers for TV and two-way radio installations. These towers are available in heights of 57 ft., 67 ft., 80 ft. and 100 ft. and suitable for erection by two men. The base plate is less than 2 ft. square. The 'Winchmatic' Telescopic Tower is available in either galvanised or painted finish, fitted with built-in winch for ease of erection and so designed as to allow the aerial to be oriented for direction after the tower is fully extended. No Sales Tax.



### PORTA TOWERS

Also manufactured is a portable model "Porta Tower," to fit on to vehicles (shown below), in heights of 50' and 65'.



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